FORESTRY ALMANAC

AMERICAN TREE ASSOCIATION

The Thinker by Kessler

FORESTRY ALMANAC

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COMPILER'S NOTE

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FORESTRY AND THE FOREST PROBLEM

By Charles Lathrop Pack

Forestry is a general term susceptible of varying definitions according to the opinions of the definer. Broadly it might be said that to practise forestry is to apply concrete scientific principles to the growth and utilization of timber crops. It does not mean laws compelling the planting of a young tree for every old one cut; regulating the sizes and kinds of trees to be cut; controlling private enterprise by government. It does mean the recreation of forest resources by the best means conceivable, and use of the existing resources with the minimum of waste.

Forestry, in the strict sense, is a science. It relates to the properties of wood; the best uses to which it can be put; the best conditions under which it can be grown. Management is an economic science applied to forestry, and an increasingly important and appreciated phase of the question. Forest fire prevention, and insect and disease control and eradication are vitally important factors in the bigger issue.

Beyond the questions of the planting, growing and protecting of forests there is the broader question of the "forest problem." These two words represent something that concerns every citizen. The science of forestry must be left to trained men who dedicate their life to the work, but the solution of the forestry problem rests with the intelligent and informed activity of the people of the nation. Their action must reflect an aroused appreciation of the importance of the forest in their economic and social life.

What is this problem? Estimates place the original forests of the United States at 822,000,000 acres. Today there remain 138,000,000 acres of virgin forest; 250,000,000 acres covered with second-growth timber or young trees of no commercial value, and 81,000,000 acres of land—fitted for no other purpose than forest growth—that are barren and unproductive of anything. Including virgin and second-growth

timber, then, it is estimated that 42 per cent. of our original resources are left. Furthermore, we are using our remaining resources between four and five times as fast as they are being reproduced.

In addition to the condition of depletion, there is a serious dislocation of our remaining forest assets from the point of view of geography. Three-fourths of the land classed as actual and potential forest land lies to the east of the Great Plains. In this section, where industrial enterprise has been built with a large measure of dependence upon wood, however, is found only 25 per cent. of the virgin timber and 40 per cent. of the merchantable stand. Thus 75 per cent. of the virgin timber and 60 per cent. of all the timber is found in the Rocky Mountains and in the states of the Pacific Coast.

The bulk of the remaining resource east of the Plains is concentrated in the South. The industrial states of the northeast and the central and lake states are dependents for their forest resources, in contrast with original forests sufficient to sustain them. In all of these states there are from one to six million acres of denuded, unworking land. These states pay an enormous annual freight bill for their timber, and in no few cases the transportation cost of the lumber is equal to what the timber itself cost delivered 30 years ago.

We have, then, a problem of dependent states, of dislocated sources of supply, of idle lands and of continued rapid inroads into our remaining assets. It is a situation that has gradually been brought to the attention of the public until there is a fairly widespread and intelligent sentiment concerning the situation. At the same time that the public education has been going forward, the Federal Government and the states have been doing what they can to prepare for the future.

There have been set aside about 156,000,000 acres as National Forests, administered by the United States Forest Service. They are being judiciously cut, protected from fire and reforested as rapidly as resources permit. The majority of the states have taken action in one way or another to create departments charged with the protection and rebuilding of forest resources. In some cases cities and towns have entered upon active forest policies.

On the scientific side, both the Federal Government and the states have established stations for research and experiment in the fields of utilization and sylviculture. More than a score of the institutions of higher education have established schools to train technical foresters,

and many others provide general courses in the economics of forestry, or on forestry for the farmer.

The forestry movement toward the solution of the forestry problem has gained rapid momentum. Progress has been made to a point where the vital need of a definite forest policy, coördinating the work of the Nation and the states, is beyond question. The necessity of tax adjustments that will encourage reforestation is plain. The need of redoubled efforts to protect the forests from the drain of fires and disease is obvious. Reforestation, more careful management, elimination of waste are among the items that must be incorporated in such a policy.

In view of that which has already been accomplished by the various active agencies, and in the light of the gradual accumulation of facts about the forestry problem and the condition of the forests, the American Tree Association has felt that an Almanac of Forestry will aid in giving a clear conception of the present situation.

In this volume, therefore, has been assembled all the important available information concerning forestry endeavor; presenting figures as simply and yet as descriptively as possible; showing the basis and scope of the forestry movement, and, in general, summing up the situation. The Almanac is not designed to be a compendium of detailed statistics or scientific facts, but rather a volume through which all interested in forestry and conservation may find what has been done, what is being done and what is yet to be done.

THE UNITED STATES FOREST SERVICE

In the United States Forest Service the Government has centred virtually all of its national forestry activities. Headed by "The Forester," under the general supervision of the Department of Agriculture, this bureau has the responsibility of administering the National Forests. It conducts research into timber production and utilization. It regulates grazing in the National Forest areas. It coöperates with the states in forestry work; examines and classifies lands for their forest value; carries on recreational work within the national timber lands; performs engineering functions in connection with water power resources, highways and surveys in the National Forests. The activities of the Forest Service are far flung, and through close contact both with all branches of the wide field of forest practice and wood use and with the public, the bureau moulds the forestry progress of the country.

HISTORY OF FEDERAL FOREST WORK

Forty-eight years ago, in 1876, a special agent was appointed by the Department of Agriculture to study the forestry conditions in the United States as they then existed. This action was a reflection of the gradually awakening recognition of the need of a forestry movement.

Despite the abounding forest that had to be cleared away to allow agricultural development, the seed of conservation was sown even in colonial days. William Penn's requirement that one acre of forest be left for every five cleared, and Connecticut's ordinance that timber should not be taken out of the township, on the ground that it would be prejudicial to the public welfare, were early attempts to check prodigal use of this resource. To insure national defense, Congress appropriated $200,000 in 1799 to buy a forest reserve containing timber for ships, and in 1827 an attempt was made to grow live oak for this purpose. Several states began to look to their timber assets, and in 1873 Congress passed the Timber Culture Act. Ineffective though it was the law sought to encourage forestation by allowing a patent of 160 acres of the public domain to any settler planting and keeping up forty acres of timber in treeless sections.

In 1886, ten years after the first investigation was inaugurated, the Division of Forestry was created in the Department of Agriculture. For several years it was limited to an informational capacity by annual appropriations never exceeding $30,000. Gradually the field work was expanded until in 1901 the division became the Bureau of Forestry. Four years later it became the Forest Service and its appropriation for the fiscal year of 1924 is $12,731,869.

UNITED STATES FORESTERS

Name	Term	Title
Dr. Franklin B. Hough	1876–1883	Agent
Mr. N. H. Eggleston	1883–1886	Agent
Dr. B. E. Fernow	1886–1898	Chief of the Division of Forestry
Mr. Gifford Pinchot	1898–1901	Chief of the Division of Forestry
	1901–1905	Chief of the Bureau of Forestry
	1905–1910	Chief of the Forest Service
Mr. Henry S. Graves	1910–1920	Chief of the Forest Service
Col. William B. Greeley	1920–	Chief of the Forest Service

ORGANIZATION OF THE FOREST SERVICE

In organization the United States Forest Service is divided into two parts, the Washington office and the field service. In Washington, under the direction of the Forester and the Associate Forester, there are seven administrative branches classified under the headings of Operation, Forest Management, Grazing, Lands, Research, Engineering and Public Relations. In the field there are eight National Forest Districts, each with headquarters in charge of district foresters. The different branches direct their particular work in the several districts, the district forester being aided by an assistant. The forests are administered by supervisors, and the work is carried forward by workers in special phases of the activity. Also in the field is the Forest Products

Laboratory, maintained for research work in connection with the University of Wisconsin at Madison, and investigation is carried on at other forest experimentation stations.

Branch of Operation

Under this branch of the Forest Service is placed general supervision of the finances, personnel, quarters and supplies and equipment of the Service. It administers the moneys allotted for the various purposes of the work. It exercises a check on the wide variety of equipment necessary, from blueprints to fire lookout towers. It supervises the quarters allotted to the Service in Washington and in the field. This branch also has charge of all of the work in the nature of permanent improvement carried on in the National Forests. For the purpose of fighting fires, watch stations, ranger stations and telephone lines are necessary. Public camp grounds, places for watering stock and many other improvements of general or specific public benefit are installed. All of these activities are centred in the hands of this branch.

Branch of Forest Management

The work of supervising the sale and cutting of timber on the National Forests is entrusted to this branch of the Service. Within the area of the forests there is considerable denuded land fitted only for forest production. The task of reforesting this acreage is placed in the hands of this branch. It also carries on coöperation with the states in protecting the forest resources under the terms of the Weeks Law, administering the financial provisions of the act for coöperative contributions of funds for fire-protection on the watersheds of navigable streams.

Branch of Grazing

To this branch is given supervision of the grazing of about seven million sheep and goats and two million cattle and swine on National Forest land every year. Settlers and stockmen of the vicinity are given the first opportunity to use this resource under permit. The administrative branch has charge of issuing these permits, regulating the grazing against overcrowding, and conducting work of research and practice in improving grazing areas. Investigations are carried on

at experimental stations to study the relative values of forage, methods of handling stock, elimination of poisonous plants and means to reseeding and the general effect of grazing on the lands. Coöperation is effected with national and state authorities in enforcing quarantine requirements. The revenue from grazing permits is normally about two million dollars a year and nearly 36,000 permits for 6,851,690 sheep; 1,915,113 cattle; 69,640 horses; 39,889 goats and 1888 swine (exclusive of animals grazing less than six months) were issued during the 1923 fiscal year.

Branch of Lands

Checking up on the assets and liabilities of the lands within the National Forests is one of the several important duties of this branch of the Service. Areas are examined and classified, setting forth their value for forest purposes. They are grouped according to their value for raising certain classes or kinds of trees, or for their special adaptability for agricultural, grazing or recreational uses. The branch conducts all work arising in connection with claims on the National Forests before they become proceedings. It supervises in a general way the issue of permits for special use of the lands for residential, commercial or industrial purposes not dangerous to the areas themselves. Recreation resources of the forests are being developed through roads and trails, free camp grounds and conveniences. Fishing and hunting are permitted under the restrictions imposed by the state in which the forest is situated, and the branch exercises general control over this activity in the large. It has further duties in controlling exchanges of the National Forest timber and lands for lands within the areas under private ownership, and in administering the work in connection with the purchase of forest lands in the East.

Branch of Research

Under this branch are grouped all the activities directed to improve the production and utilization of timber. All the investigative work of the Service is under the supervision of this office. Many studies are carried on with a view not only to their effect on the administration of the National Forests but on wood users and producers in general. Among these inquiries are studies of forest management, the best

methods of growing and cutting, the most desirable kinds of trees under given conditions, the relation of forests to climate and the flow of streams, and general sylvicultural experimentation. Experimental stations are maintained at Amherst, Massachusetts; St. Paul, Minnesota; Asheville, North Carolina; Colorado Springs, Colorado; Missoula, Montana; Stabler, Washington; New Orleans, Louisiana; and Flagstaff, Arizona to carry on this work. The Forest Products Laboratory at Madison, Wisconsin, is concerned with discovering the most effective uses of wood, going into the chemical, mechanical and physical properties and conducting general research into fields as yet untouched. Studies of forest economics, statistics, imports and exports, taxation and economic problems involved with our timber resources are made.

Branch of Engineering

Virtually all of the civil-engineering work with which the Forest Service is concerned is concentrated in the hands of this branch. Within the National Forests there are many streams—their headwaters protected by adequate timber growth—that are suitable sites for water power development. Their utilization is encouraged although the government does not permit monopoly in any region or permit the holding of sites without development. The engineering branch administers all of the permits and easements issued for power development prior to the passage of the Federal Water Power Act and the creation of the Federal Power Commission. It coöperates with the commission in making such studies and reports as are requested by it. Road-building in the National Forests is being pushed to the limits of the funds available, and already 6873 miles of roads have been built. Trails now covering 10,675 miles have been put through both for recreational and fire-fighting uses. The engineering branch has charge of this work. It also has the work of making surveys and maps needed by the Service, and any special engineering activities are allotted to it.

Branch of Public Relations

Since the increase in the use of the National Forests for recreational purposes, their value as a national asset, and the necessity of keeping fires out of them, require appreciation and coöperation on

the part of the public, a special branch is charged with this contact work. Through the press and other publications, information and material for the schools, exhibits of various sorts and other mediums, this coöperation is sought. A large collection of photographs illustrative of the many phases of forestry work has been gathered and is available. Maps, lantern slides, motion pictures, travelling exhibits and special publications of the Service are included in the educational equipment of the Service.

OTHER GOVERNMENT FORESTRY ACTIVITIES

Interior Department

Under this governmental department are the Office of Indian Affairs and the National Park Service. Within the areas of the Indian Reservations and the National Parks there are considerable forest areas, administered by these two bureaus, and constituting a forest reserve preserved with a view to the æsthetic value of the wonderful natural areas that the government has set aside as national playgrounds.

Department of Agriculture

Through the Office of Forest Pathology of the Bureau of Plant Industry, investigation and experiment of high value to forestry work is carried on. Studies are made of the activities of such pests as the spruce bud worm and the white pine blister rust with a view to controlling the enemies of the growing timber. The pathology office concerns itself with the diseases of the trees while the Bureau of Entomology studies the insects that attack the forests. Through this work coöperation is effected with the Forest Service in carrying on important protective work.

THE NATIONAL FORESTS

"From the hardwoods of the Southern Appalachians to the spruces of the White Mountains in New England, from the piñon and juniper stands where tree growth begins in the southern Rockies of New Mexico to the pine and fir forests of the Canadian line in Montana and Idaho, from the brush-covered foothills of the San Jacinto and San Bernardino Mountains in southern California to the

vast softwood stands of the Olympics and Cascades in northern Washington, the National Forests lie mainly on the mountain slopes. Even along the Alaskan shore, where the Tongass and Chugach Forests form a tattered ribbon six hundred miles long from the southern tip of the territory to within sight of Mount McKinley, the valuable Sitka spruce and hemlock growth clothes the lower flanks of the coastal mountains."

In these words the United States Forest Service describes the 149 National Forests, totalling more than 156,000,000 acres, which it administers for the public. These areas are maintained in the best interests of the general welfare. They enclose a great material wealth in wood, water and land for forage. They contribute largely to industrial enterprise through their yearly yield of practically one billion board feet of timber. They protect the watersheds of one-third of the waterpower resources of the country and the water supply of more than a thousand communities. The National Forests provide pasturage of millions of live stock. They are the playgrounds of recreation seekers in search of camp and trail.

Although the country was aroused to the need of a forestry movement along national lines longer ago, three decades represent the period in which these National Forest assets have been acquired. Before that the public domain was being swept by fire or taken up by private enterprise and cut over at a devastating rate. Timber booms came and moved on, leaving a wake of destruction. Had this gone on not only the timber resources but the agricultural land and waterpower resources would have been ruined or seriously hurt.

In 1891 Congress empowered the President to set aside forest reserves from the public domain, to protect both the timber resources and the flow of streams. That year President Harrison created the "Yellowstone Park Timberland Reserve," starting the work of conservation. The act of Congress, however, did not provide for administration of this territory, and the present system really dates from June 4, 1897, when Congress passed a law creating a plan of organization and management and placing it in the hands of the Department of the Interior.

It soon became apparent that the administration of these reserves required scientific and technical supervisions. At first the Department of Agriculture was requested to lend the aid of experts and finally

it was recommended that a transfer of stewardship be made. This was accomplished in 1905 and two years later the title National Forests was conferred, the philosophy being that "reserves" indicated something locked up for the future.

EASTERN NATIONAL FORESTS

Creation of National Forests east of the Mississippi River presented a different problem from those of the West. The public domain in the East had long been taken over before the government embarked on a Forest policy. In 1911, therefore, under the provisions of the so-called Weeks Law, a program of purchase of mountain lands from private owners was begun, applying to the regions of the White and Appalachian Mountains.

The Act created the National Forest Reservation Commission. It consists of the Secretary of War, the Secretary of the Interior, the Secretary of Agriculture and two members from each branch of Congress. This body has the power to acquire lands for National Forests, and since the passage of the Act about two million acres of spruce or hardwood forest have been purchased. They have been placed under the systematic management of the Forest Service and are administered as are the western Forests with a view to regulating and assuring the flow of streams and increasing the supply of forest products.

Under the practice of forestry in these areas the resources of timber have been steadily increasing. The eastern National Forests now represent a value greater than that paid for them by the Government, and they return a rapidly increasing revenue, being now virtually self-supporting. They represent a highly valuable resource to sustain eastern wood-using industries.

The following is a list of lands either purchased or approved for purchase under the provisions of the Weeks Law since its enactment:

Lands Acquired Under the Weeks Law.
To June 30, 1923.

State.	Area.	Total.	Area approved for purchase.	Acquired.	Headquarters.
		Acres.	*Acres.*	*Acres.*	
Alabama	Alabama	83,911	4,462	79,449	Moulton.
Arkansas	Arkansas	36,901	2,654	34,247	Hot Springs.
	Ozark	21,067	2,108	18,959	Russellville.
Total		57,968	4,762	53,206	
Georgia	Cherokee (part)	70,196	1,156	69,040	Athens, Tenn.
	Nantahala (part)	89,575	5,158	84,417	Franklin, N. C.
Total		159,771	6,314	153,457	
Maine	White Mountain (part)	32,256	0	32,256	Gorham, N. H.
New Hampshire	White Mountain (part)	408,325	3,380	404,945	Gorham.
North Carolina	Nantahala (part)	112,877	1,014	111,863	Franklin.
	Pisgah	220,560	3,685	216,875	Asheville.
	Unaka (part)	20,099	516	19,583	Bristol, Tenn.
Total		353,536	5,215	348,321	
Pennsylvania	Allegheny [1]	108,886	108,886	0	Warren.
South Carolina	Nantahala (part)	19,161	603	18,558	Franklin, N. C.
Tennessee	Cherokee (part)	141,636	1,084	140,552	Athens.
	Unaka (part)	130,166	29,508	100,658	Bristol.
Total		271,802	30,592	241,210	
Virginia	Monongahela (part)	10,414	10,414	0	Elkins, W. Va.
	Natural Bridge	143,386	22,090	121,296	Lynchburg.
	Shenandoah (part)	301,669	13,856	287,813	Harrisonburg.
	Unaka (part)	45,201	22,797	22,404	Bristol, Tenn.
Total		500,670	69,157	431,513	
West Virginia	Monongahela (part)	159,963	75,462	84,501	Elkins.
	Shenandoah (part)	51,885	4,278	47,607	Harrisonburg, Va.
Total		211,848	79,740	132,108	
Grand total		2,208,134	313,111	1,895,023	

[1]Purchase area not proclaimed as National Forest.

NATIONAL FOREST ADMINISTRATION

With a view to slashing red tape and avoiding bureaucratic delay, the work of administering the National Forests has been divided into eight field districts. Each district is under the direction of a district forester, whose work is directed by the several branches charged with

special duties. He is assisted by assistant district foresters, immediately charged with specialized work carried on in their district. Each forest is run by a forest supervisor, who has a deputy when the work of administration requires.

Various lines of technical and administrative work must be carried on in running a forest. This is done by forest assistants chosen through technical examination. After a period of practice they are eligible for posts of forest examiners, doing work of mapping areas, examining timber, carrying on planting or nursery work and marking timber for cutting.

Each National Forest is further divided into ranger districts. The Forest Ranger is the watchdog of the fire. He supervises timber sales, grazing and uses of the forest. He helps build trails, roads and bridges and string telephone lines. In addition there are special field men needed in connection with logging and reforestation work. During the period of greatest fire danger special forest guards are employed temporarily.

The eight National Forest Districts are:

I. Northern District—Montana, northeastern Washington, northern Idaho and northwestern South Dakota. Headquarters at Missoula, Montana.

II. Rocky Mountain District—Colorado, Wyoming, South Dakota, Nebraska, northern Michigan and northern Minnesota. Headquarters at Denver, Colorado.

III. Southwestern District—Arizona and New Mexico. Headquarters at Albuquerque, New Mexico.

IV. Intermountain District—Utah, southern Idaho, western Wyoming, eastern and central Nevada and northwestern Arizona. Headquarters at Ogden, Utah.

V. California District—California and southwestern Nevada. Headquarters at San Francisco, California.

VI. North Pacific District—Washington and Oregon, Headquarters at Portland, Oregon.

VII. Eastern District—Maine, New Hampshire, Pennsylvania, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Arkansas, Oklahoma and Porto Rico. Headquarters at Washington, D. C.

VIII. Alaskan District—Alaska. Headquarters at Juneau.

The following is a list of the National Forests, their names, net areas, headquarters and districts as compiled by the Branch of Engineering of the United States Forest Service and corrected up to June 30, 1923.

State	Forest	Net area	Forest headquarters	District
		Acres		
Alabama	Alabama	[1] 97,198	Moulton	7
Alaska	Chugach	5,129,120	Cordova	8
	Tongass	15,442,429	Ketchikan	8
Total		20,571,549		
Arizona	Apache	1,190,211	Springerville	3
	Coconino	1,588,950	Flagstaff	3
	Coronado [2]	1,303,380	Tucson	3
	Crook	889,126	Safford	3
	Dixie [2]	17,680	Cedar City, Utah	4
	Kaibab	752,214	Kanab, Utah	4
	Prescott	1,445,513	Prescott	3
	Sitgreaves	629,585	Holbrook	3
	Tonto	2,112,888	Phœnix	3
	Tusayan	1,274,757	Williams	3
Total		11,204,304		
Arkansas	Arkansas	[3] 659,725	Hot Springs National Park.	7
	Ozark	[4] 297,522	Russellville	7
Total		957,247		
California	Angeles	829,080	Los Angeles	5
	California	818,949	Willows	5
	Cleveland	549,226	San Diego	5
	Crater [2]	48,148	Medford, Oreg.	6
	Eldorado [2]	552,518	Placerville	5
	Inyo [2]	1,632,556	Bishop	5
	Klamath [2]	1,525,257	Yreka	5
	Lassen	942,846	Susanville	5
	Modoc	1,461,599	Alturas	5
	Mono [2]	794,346	Minden, Nev.	5
	Plumas	1,108,043	Quincy	5
	Santa Barbara	2,022,948	Santa Barbara	5
	Sequoia	1,450,484	Porterville	5

[1] This includes 79,449 acres acquired under the Weeks law.
[2] Forest in more than one State.
[3] This includes 34,247 acres acquired under the Weeks law.
[4] This includes 2,654 acres approved for purchase under the Weeks law.

State	Forest	Net area	Forest headquarters	District
		Acres		
California (Continued)	Shasta	849,576	Sisson	5
	Sierra	1,493,400	Northfork	5
	Siskiyou [5]	348,877	Grants Pass, Oreg.	6
	Stanislaus	810,802	Sonora	5
	Tahoe [5]	498,895	Nevada City	5
	Trinity	1,410,037	Weaverville	5
Total		19,147,587		
Colorado	Arapaho	635,900	Hot Sulphur Springs.	2
	Battlement	659,863	Grand Junction	2
	Cochetopa	908,335	Salida	2
	Colorado	853,641	Fort Collins	2
	Gunnison	905,303	Gunnison	2
	Hayden [5]	65,769	Encampment, Wyo.	2
	Holy Cross	1,124,369	Glenwood Springs	2
	La Sal [5]	26,631	Moab, Utah	4
	Leadville	927,388	Leadville	2
	Montezuma	697,141	Mancos	2
	Pike	1,084,338	Colorado Springs	2
	Rio Grande	1,135,778	Monte Vista	2
	Routt	742,827	Steamboat Springs	2
	San Isabel	598,936	Pueblo	2
	San Juan	1,240,112	Durango	2
	Uncompahgre	778,291	Delta	2
	White River	892,416	Glenwood Springs.	2
Total		13,277,038		
Florida	Florida	337,938	Pensacola	7
Georgia	Cherokee [5]	69,040	Athens, Tenn.	7
	Nantahala [5]	84,417	Franklin, N. C.	7
Total		153,457		
Idaho	Boise	1,062,687	Boise	4
	Cache [5]	494,312	Logan, Utah	4
	Caribou [5]	697,556	Montpelier	4
	Challis	1,253,570	Challis	4
	Clearwater	785,376	Orofino	1
	Coeur d'Alene	662,009	Coeur d'Alene	1
	Idaho	1,863,915	McCall	4
	Kaniksu [5]	188,310	Sandpoint	1
	Lemhi	1,356,204	Mackay	4
	Minidoka [5]	521,071	Burley	4

[5] Forest in more than one State.

State	Forest	Net area	Forest headquarters	District
		Acres		
Idaho (Continued)	Nezperce	1,658,587	Grangeville	1
	Payette	1,202,244	Emmett	4
	Pend Oreille	674,733	Sandpoint	1
	St. Joe	551,272	Coeur d'Alene	1
	Salmon	1,659,932	Salmon	4
	Sawtooth	1,158,579	Hailey	4
	Selway	1,688,287	Kooskia	1
	Targhee [6]	1,011,906	St. Anthony	4
	Weiser	566,321	Weiser	4
Total		19,056,871		
Maine	White Mountain [6]	32,256	Gorham, N. H.	7
Michigan	Michigan	124,082	East Tawas	2
Minnesota	Minnesota	190,602	Cass Lake	2
	Superior	857,339	Ely	2
Total		1,047,941		
Montana	Absaroka	841,065	Livingston	1
	Beartooth	659,720	Billings	1
	Beaverhead	1,339,421	Dillon	1
	Bitterroot	1,047,065	Hamilton	1
	Blackfeet	837,133	Kalispell	1
	Cabinet	829,184	Thompson Falls	1
	Custer [6]	517,099	Miles City	1
	Deerlodge	829,582	Butte	1
	Flathead	1,731,562	Kalispell	1
	Gallatin	574,687	Bozeman	1
	Helena	680,078	Helena	1
	Jefferson	1,040,246	Great Falls	1
	Kootenai	1,332,145	Libby	1
	Lewis and Clark	810,731	Choteau	1
	Lolo	850,677	Missoula	1
	Madison	930,963	Sheridan	1
	Missoula	1,030,357	Missoula	1
Total		15,881,715		
Nebraska	Nebraska	205,944	Halsey	2
Nevada	Dixie [6]	56,324	Cedar City, Utah	4
	Eldorado [6]	400	Placerville, Calif.	5
	Humboldt	1,322,435	Elko	4
	Inyo [6]	60,376	Bishop, Calif.	5
	Mono [6]	463,982	Minden	5

[6] Forest in more than one State.

State	Forest	Net area	Forest headquarters	District
		Acres		
Nevada	Nevada	1,175,281	Ely	4
(Continued)	Tahoe [7]	13,853	Nevada City, Calif.	5
	Toiyabe	1,883,862	Austin	4
Total		4,976,513		
New Hampshire	White Mountain [7]	404,945	Gorham	7
New Mexico	Carson	1,066,570	Taos	3
	Coronado [7]	125,540	Tucson, Ariz.	3
	Datil	2,641,385	Magdalena	3
	Gila	1,596,216	Silver City	3
	Lincoln	1,123,531	Alamogordo	3
	Manzano	712,342	Albuquerque	3
	Santa Fe	1,270,400	Santa Fe	3
Total		8,535,984		
North Carolina	Cherokee [7]	0	Athens, Tenn.	7
	Nantahala [7]	[8] 115,165	Franklin	7
	Pisgah	[9] 224,942	Asheville	7
	Unaka [7]	19,583	Bristol, Tenn.	7
Total		359,690		
Oklahoma	Wichita	61,480	Cache	7
Oregon	Cascade	1,022,673	Eugene	6
	Crater [7]	804,409	Medford	6
	Deschutes	1,284,008	Bend	6
	Fremont	849,526	Lakeview	6
	Klamath [7]	8,723	Yreka, Calif.	5
	Malheur	1,048,666	John Day	6
	Ochoco	717,994	Prineville	6
	Oregon	1,054,139	Portland	6
	Santiam	607,090	Albany	6
	Siskiyou [7]	998,021	Grants Pass	6
	Siuslaw	545,919	Eugene	6
	Umatilla [7]	915,461	Pendleton	6
	Umpqua	1,010,207	Roseburg	6
	Wallowa	957,166	Wallowa	6
	Whitman	1,313,445	Baker	6
Total		13,137,447		

[7] Forest in more than one State.
[8] This includes 3,302 acres transferred from the Treasury Department.
[9] This includes 8,067 acres transferred from the Treasury Department.

State	Forest	Net area	Forest headquarters	District
		Acres		
Porto Rico	Luquillo	12,443	Rio Piedras	7
South Carolina	Nantahala [10]	18,558	Franklin, N. C.	7
South Dakota	Black Hills [10]	476,140	Deadwood	2
	Custer [10]	73,526	Miles City, Mont.	1
	Harney	508,081	Custer	2
Total		1,057,747		
Tennessee	Cherokee [10]	140,552	Athens	7
	Unaka [10]	100,658	Bristol	7
Total		241,210		
Utah	Ashley [10]	973,826	Vernal	4
	Cache [10]	276,525	Logan	4
	Dixie [10]	794,489	Cedar City	4
	Fillmore	703,815	Richfield	4
	Fishlake	662,005	Richfield	4
	La Sal [10]	512,564	Moab	4
	Manti	779,811	Ephraim	4
	Minidoka [10]	69,392	Burley, Idaho	4
	Powell	1,050,365	Widtsoe	4
	Uinta	1,021,941	Provo	4
	Wasatch	608,667	Salt Lake City	4
Total		7,453,400		
Virginia	Monongahela [10]	0	Elkins, W. Va.	7
	Natural Bridge	121,296	Lynchburg	7
	Shenandoah [10]	287,813	Harrisonburg	7
	Unaka [10]	22,404	Bristol, Tenn.	7
Total		431,513		
Washington	Chelan	1,997,780	Okanogan	6
	Columbia	764,926	Portland, Oreg.	6
	Colville	746,381	Republic	6
	Kaniksu [10]	257,607	Sandpoint, Idaho	1
	Olympic	1,535,503	Olympia	6
	Rainier	1,313,787	Tacoma	6
	Snoqualmie	693,415	Seattle	6
	Umatilla [10]	313,439	Pendleton, Oreg.	6
	Washington	1,459,491	Bellingham	6
	Wenatchee	818,540	Wenatchee	6
Total		9,900,869		

[10] Forest in more than one State.

State	Forest	Net area	Forest headquarters	District
		Acres		
West Virginia	Monongahela [11]	84,501	Elkins	7
	Shenandoah [11]	47,607	Harrisonburg, Va.	7
Total		132,108		
Wyoming	Ashley [11]	5,988	Vernal, Utah	4
	Bighorn	1,124,617	Sheridan	2
	Black Hills [11]	144,416	Deadwood, S. Dak.	2
	Caribou [11]	6,315	Montpelier, Idaho.	4
	Hayden [11]	328,284	Encampment	2
	Medicine Bow	478,114	Laramie	2
	Shoshone	1,584,289	Cody	2
	Targhee [11]	345,569	St. Anthony, Idaho.	4
	Teton	1,881,396	Jackson	4
	Washakie	852,315	Lander	2
	Wyoming	1,666,470	Kemmerer	4
Total		8,417,773		
Aggregate for the 146 national forests		157,236,807		

[11] Forest in more than one State.

National Forest Areas, by Districts.

No.	Name	District Headquarters	Gross area	Alienated lands	Net area
			Acres	*Acres*	*Acres*
1	Northern District.	Missoula, Mont.	26,527,704	4,106,282	22,421,422
2	Rocky Mountain District.	Denver, Colo.	22,547,361	2,422,731	20,124,630
3	Southwestern District.	Albuquerque, N. Mex.	21,057,718	2,087,324	18,970,394
4	Intermountain District.	Ogden, Utah	30,653,287	1,211,425	29,441,862
5	California District.	San Francisco, Calif.	24,442,844	5,144,948	19,297,896
6	North Pacific District.	Portland, Oreg.	27,092,438	3,923,427	23,169,011
7	Eastern District.	Washington, D. C.	9,070,332	5,830,289	3,240,043
8	Alaskan District.	Juneau, Alaska	20,708,118	136,569	20,571,549
	Total of the 8 districts		182,099,802	24,862,995	157,236,80

RECREATION IN THE NATIONAL FOREST

Several million people every year take advantage of the recreational facilities offered by the National Forests. This phase of the administration of the forests is being developed by the Forest Service in accord with the policy of making these properties of the people serve them to the best advantage. Through trails and roads the forests are made accessible. Within them there are many lakes and brooks, admirable for fishing and camping. Game is found in some areas and streams are stocked with fish.

Camping in the National Forests is free. As a general rule no permits are required. The only return that the Forest Service asks is care with fires and the sanitation of camps. For those who wish to spend their vacations every year in the National Forests, Congress has authorized the issuance of permits to responsible individuals or associations to use space in the areas for the construction of such buildings as are necessary for recreation and public convenience. The area rented to each individual or group is limited to five acres. Permits run from 5 to 15 years or longer, and the annual rental charges are small, varying from $5 to $25. The forest supervisor is in charge of the recreational permit work. Because of their limited areas and the growing demand for public camping facilities leases for summer homes in the eastern National Forests are allowed only on a clear showing that the site involved will not be needed for general public use.

GAME PRESERVES IN NATIONAL FORESTS

Coöperating with local and state authorities in enforcing game laws, the field men of the Forest Service are charged with a certain amount of game protective work. The conservation of this wild life adds greatly to the beauty and enjoyment of the forest areas. By act of Congress game sanctuaries have been set aside either wholly or partly within the National Forests. They are: The Custer State Park Game Sanctuary in the Harney National Forest of South Dakota; the Grand Canyon in the Kaibab and Tusayan National Forests of Arizona; Pisgah Game Preserve in the Pisgah National Forest of North Carolina and the Wichita Preserve in the Wichita National Forest of Oklahoma.

NATIONAL MONUMENTS IN NATIONAL FORESTS

When such wonders of historic significance as the cliff dwellings or pueblo ruins or such unique topographic marvels as are found in many parts of the West fall within the area of the National Forests, the Forest Service is charged with their administration. They have been designated National Monuments by Congress, and coöperation is effected with the Bureau of American Ethnology of the Smithsonian Institution in protecting them and studying them.

The following National Monuments are to be found in the National Forests: The Bandelier in the Santa Fe National Forest of New Mexico; the Devil Post Pile in the Sierra National Forest of California; the Gila Cliff Dwellings in the Gila National Forest of New Mexico; the Jewel Cave in the Harney National Forest in South Dakota; the Old Kassaan in the Tongass National Forest of Alaska; the Mount Olympus in the Olympic National Forest in Washington; the Oregon Caves in the Siskiyou National Forest of Oregon; the Tonto in the Tonto National Forest of Arizona; Walnut Canyon in the Coconino National Forest of Arizona and Wheeler in the Cochetopa and Rio Grande National Forests in Colorado.

FOREST ROADS AND TRAILS

Annually apportionment is made to the states having National Forests within their borders of a sum for the construction in coöperation with the local authorities of roads and trails within the forests. This is known as the Section 8 fund and is expended under coöperative agreements with the states.

For the fiscal year 1924 there is a total of $1,000,000 available. Of this $100,000 is reserved for administrative work. The following allocation of the remainder is made: Arizona, $54,209; Arkansas, $9732; California, $126,822; Colorado, $67,537; Idaho, $114,764; Montana,$64,889; Nevada, $17,164; New Mexico, $37,945; Oregon, $136,686; South Dakota, $7495; Utah, $38,319; Washington, $85,-741; Wyoming, $45,201. Alaska will receive $43,919. Florida, Michigan, Minnesota, Nebraska, North Dakota, Oklahoma and Porto Rico will share in $13,980. Alabama, Georgia, Maine, New Hampshire, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia will share in $35,597.

FIRE PROTECTION IN NATIONAL FORESTS

Fire is the lurking enemy of the National Forests. To guard against this costly scourge sweeping the widespread areas of the forests is a constant problem. It is complicated by remoteness, dry air and light rainfall, mountain lightning and the carelessness of human beings. During 1923 fires within the boundaries of the National Forests covered an area of 373,214 acres. The destruction of timber and property is set at $494,965,000, and the damage to young growth, protection of watersheds and recreational facilities is incalculable because intangible. It is estimated that 60 per cent. of these fires were caused by man.

To protect against and combat this menace to the forest wealth, the Forest Service maintains an extensive organization. By means of lookout towers, patrols and a comprehensive telephone system, the word of a discovered fire is flashed to the fire-fighters. Airplanes have been used with some success—particularly when no fires are already burning—to detect fires. Experiments are being made with the radio. Roads and trails are being built into the National Forest areas so that burning areas may be reached more quickly. Tools for the combat, and food for the combatants, are stored in various places. During the danger seasons of the summer extra patrols and rangers are added.

Still the match carelessly thrown aside, the cigarette, cigar or pipe ash dropped in the brush, the unquenched campfire, make waste. Lightning, sawmills, railroad engines, slash burning and incendiarism account for many of the fires. Methods are being employed through spark arresters and similar devices to check fires from trains and mills. Regulations are effected against slash burning. Vigilance is the only weapon against lightning and the fire-setter.

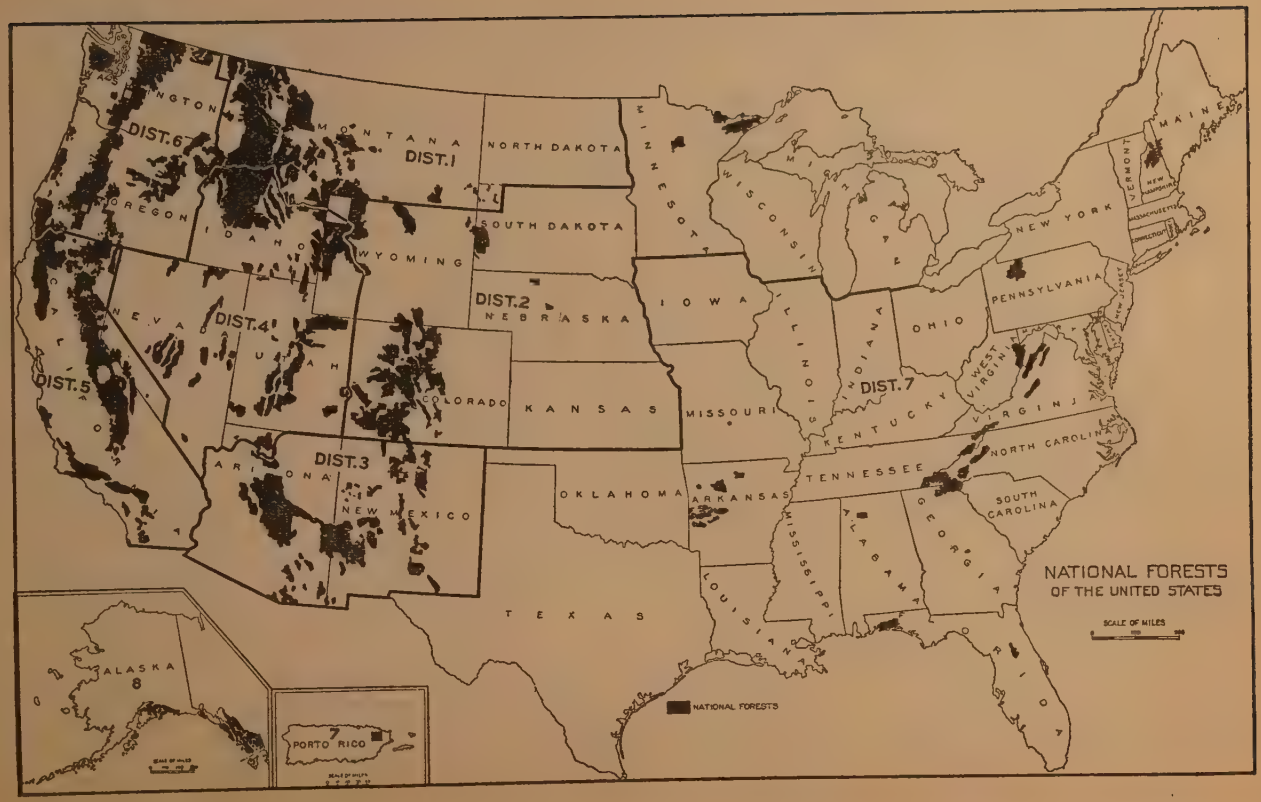
Through coöperation with the states, the Federal Government, under the Weeks Law aids in protecting against fire on the forested watersheds of navigable streams. Under this law the Secretary of Agriculture is allowed to enter into coöperation with states maintaining a system of fire control and spending at least as much as the Federal Government. The Forest Service uses that fund to pay the salaries of a certain number of state patrols. There has been a steady increase in this work, and the Federal Government will con-

tribute $400,000 in coöperation with 27 states. There are twelve states, however, that have no fire protection organization of their own, and others with insufficient organization to warrant coöperation.

Allotments of funds under the Weeks Law for coöperative activity in fire protection are pro rated on the basis of the amount necessary and scaled down to within the limits of the appropriation authorized by Congress. The following table shows the allotments for the fiscal year 1924:

State	Area needing protection (M) acres	Estimated cost per acre	Total cost	Seven per cent.	Reduced to	
					Maximum	50–50 (Allotment)
Maine	15,000	$ .028	$420,000	$29,400	$21,500	$21,500
New Hampshire	4,300	.028	120,400	8,428	8,428	8,425
Vermont	3,750	.016	60,000	4,200	4,200	4,200
Massachusetts	3,000	.04	120,000	8,400	8,400	8,400
Rhode Island	250	.035	8,750	613	613	625
Connecticut	1,500	.03	45,000	3,150	3,150	3,150
New York	14,000	.028	392,000	27,440	21,500	21,500
New Jersey	1,800	.04	72,000	5,040	5,040	5,050
Pennsylvania	13,000	.03	390,000	27,300	21,500	21,500
Maryland	2,200	.025	55,000	3,850	3,850	3,850
Virginia	14,000	.025	350,000	24,500	21,500	19,350
West Virginia	6,000	.025	150,000	10,500	10,500	10,500
North Carolina	19,500	.025	487,500	34,125	21,500	21,500
Tennessee	9,000	.025	202,500	14,175	14,175	11,700
Louisiana	12,000	.025	300,000	21,000	21,000	21,000
Texas	11,000	.025	275,000	19,250	19,250	18,000
Ohio	1,150	.02	23,000	1,610	1,610	1,600
Michigan	15,000	.03	450,000	31,500	21,500	21,500
Wisconsin	14,000	.03	420,000	29,400	21,500	15,000
Minnesota	20,000	.035	700,000	49,000	21,500	21,500
New Mexico	1,200	.01	11,450	800	800	800
South Dakota	50	.03	1,500	105	105	100
Montana	4,900	.04	196,000	13,720	13,720	13,725
Idaho, North	3,750	.08	300,000	21,000	19,190	19,200
Idaho, South	1,100	.03	33,000	2,310	2,310	2,300
Washington	12,000	.03	360,000	25,200	21,500	21,500
Oregon	12,000	.03	360,000	25,200	21,500	21,500
California	13,000	.025	325,000	22,750	21,500	21,500
Totals	228,450	...	$6,628,100	$463,966	$372,841	$360,475

Administration	27,570
Balance available for allotment to new States and for emergencies	11,955
Total Appropriation	$400,000


DIST. 6
DIST. 1
DIST. 4
DIST. 5
DIST. 2
DIST. 3
DIST. 7
MONTANA
NORTH DAKOTA
SOUTH DAKOTA
WYOMING
NEBRASKA
COLORADO
KANSAS
OKLAHOMA
TEXAS
NEW MEXICO
IOWA
MISSOURI
ARKANSAS
LOUISIANA
MINNESOTA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
MAINE
VERMONT
NEW HAMPSHIRE
MASSACHUSETTS
CONNECTICUT
NEW JERSEY
ALASKA
8
PORTO RICO
7
NATIONAL FORESTS
NATIONAL FORESTS
OF THE UNITED STATES
SCALE OF MILES

FOREST SERVICE OFFICIALS

The following is a list of principal departmental and district officials of the United States Forest Service:

Washington

William B. Greeley, Forester.
Edward. A. Sherman, Associate Forester.
H. I. Loving, Chief, Finance and Accounts.
Roy Headley, Assistant Forester, Branch of Operation.
E. E. Carter, Assistant Forester, Branch of Forest Management.
Will C. Barnes, Assistant Forester, Branch of Grazing.
L. F. Kneipp, Assistant Forester, Branch of Lands.
Earle H. Clapp, Assistant Forester, Branch of Research.
T. W. Norcross, Chief Engineer, Branch of Engineering.
Herbert A. Smith, Assistant Forester, Branch of Public Relations.

In the Field

Fred Morrell, District Forester, (1) Missoula, Montana.
Allen S. Peck, District Forester, (2) Denver, Colorado.
Frank C. W. Pooler, District Forester, (3) Albuquerque, New Mexico.
R. H. Rutledge, District Forester, (4) Ogden, Utah.
Paul G. Redington, District Forester, (5) San Francisco, California.
George H. Cecil, District Forester, (6) Portland, Oregon.
F. W. Reed, District Forester, (7) Washington, D. C.
Charles H. Flory, District Forester, (8) Juneau, Alaska.
E. H. Frothingham, Director, Appalachian Forest Experiment Station, Asheville, N. C.
G. A. Pearson, Sylviculturist, Fort Valley Forest Experiment Station, Flagstaff, Arizona.
C. G. Bates, Sylviculturist, Fremont Forest Experiment Station, Colorado Springs, Colorado.
Raphael Zon, Director, Lake States Forest Experiment Station, University Farm, St. Paul, Minnesota, also Cloquet Forest Experiment Station.
Samuel T. Dana, Director, Northeastern Forest Experiment Station, Amherst, Massachusetts.

R. H. Weidman, Sylviculturist, Priest River Forest Experiment Station, Missoula, Montana.

R. D. Forbes, Director, Southern Forest Experiment Station, New Orleans, Louisiana.

Julius V. Hoffman, Sylviculturist, Wind River Forest Experiment Station, Stabler, Washington.

Walter M. Weld, Observer, Wagon Wheel Gap Station, Wagon Wheel Gap, Colorado. (In coöperation with Weather Bureau.)

Carlile P. Winslow, Director, Forest Products Laboratory, Madison, Wisconsin.

Causes of Forest Fires in the United States,[1] *1921, Contrasted with Six-year Average, 1916–1921.*

	Causes of fires.								
	All causes.	Lumbering.	Lightning.	Incendiary.	Brush burning.	Campers.	Railroads.	Miscellaneous.	Unknown.
Number of fires:									
1921.....	38,435	1,826	2,188	5,336	4,358	7,638	5,515	2,804	8,770
1916–1921 (average).	33,516	1,973	3,006	4,253	4,431	4,696	4,987	2,092	8,078
Per cent. of fires arising from each cause:									
1921.....	100.0	4.8	5.7	13.9	11.3	19.9	14.3	7.3	22.8
1916–1921 (average).	100.0	5.9	9.0	12.7	13.2	14.0	14.9	6.2	24.1

[1] Continental area, excluding Alaska.

NATIONAL FORESTRY LEGISLATION

The year 1926 will mark the close of a half century during which the forest policy of the United States has been in process of development. While there were occasional and ineffectual attempts on the part of the National Government to encourage forest conservation and growth, usually for purposes of national defense, during the early days of the Republic, the year 1876 saw the first definite action. In that year Congress appropriated $2000 for the employment of a competent man to investigate the timber conditions of the country, getting the appropriation through as a rider to a bill for the distribution of seed.

This piece of legislation created the office of agent with investigatory and informational duties. Dr. Franklin B. Hough was appointed to this office, serving until 1883, when he was succeeded by N. H. Eggleston. Funds were provided annually by Congress, but only to the extent that the office might give data of general and restricted character.

This first decade of national recognition of the forest problem was closed with the creation of the Division of Forestry in the Department of Agriculture by an act of June 30, 1886. For several years the work of the division was held down to informational activity by small appropriations. By an act of March 3, 1891, however, the President was authorized to establish Forest Reserves, and on March 30,1891, the Yellowstone Park Timberland Reserve was proclaimed by President Harrison. Six years later, on June 4, 1897, the present National Forest Act was passed, providing for the acquisition and administration of these areas under a workable law.

The chief activity during the next few years was the development of the forestry work of the government. It was expanded in scope and importance as a reflection of the growing national sentiment. On July 1, 1901, the Division of Forestry became the Bureau of Forestry, and on February 1, 1905, it took its present name of the Forest Service.

The passage of the Weeks Law on March 1, 1911, was perhaps the first piece of national legislation enunciating a basis of forest policy. It provided for the acquisition of National Forest areas in the East, creating the National Forest Reservation Commission

charged with the purchase of such areas on the headwaters of navigable streams. The measure also provided for coöperative fire protection with the states carrying on protective work.

The years succeeding were not marked by any significant legislation. It was primarily a period of fluctuating appropriations, affected first by the European War and then by America's participation in the war. At the same time it was a period of mobilizing public sentiment on the forestry question and of development in the fields of technical forestry.

This process has resulted in signalizing the years 1921 to 1924 by the concerted demand for national legislation setting forth a national forest policy. This demand was embodied in the Snell Bill, introduced in Congress on April 11, 1921; the Capper Bill, introduced May 2, 1921, and the McNary-Clarke Bill, introduced as a result of the extended hearings of the special Reforestation Committee of the Senate on December 25, 1923.

The Snell and Capper Bills represent two different schools of thought in relation to the forest policy, and there was a measure of disagreement among foresters as to the merits of the Snell Bill. This measure involved the principle of federal coöperation with the states in forestry work. It provided $1,000,000 for coöperative fire protection; $3,000,000 for a coöperative survey of forest resources and their adaptability to conditions; $1,000,000 for research and experimentation; $1,000,000 for nursery and reforestation work in the National Forests; $50,000,000 to be available for carrying out the provisions of the Weeks Law. It also contemplated extension of the authority of the National Forest Reservation Commission to include acquisition of land chiefly valuable for forest production, provided for the exchanges of land for National Forests and extended the possibilities of bringing publicly-owned areas supporting timber under the Forest Service administration. The Snell Bill was argued before Congress in 1921 and 1922 but failed of passage in any of its essential features.

The support of the Capper Bill, still pending before Congress, is led by Gifford Pinchot, former Chief Forester of the United States and Governor of Pennsylvania. This measure embodies the principles of regulation of cutting on all public and private forests. It would apply to the United States methods of administration similar to those

employed in France and Germany. The question raised in connection with this measure is not one of theoretical fallacy but of the practicability of its application in the United States.

The Capper Bill would divide the United States into forest regions; it would have harvesting regulations; it would have these administered over all private and public forest lands by regional foresters; it would provide a check upon the lumbering methods and accounts of those cutting forests; it would provide for the payment of a tax of five cents per thousand board feet on all timber cut according to standard and regulations and $5 per thousand on all timber not so cut, with penalties for evasion.

The Sixty-Seventh Congress at its fourth session passed a resolution creating a Select Committee on Reforestation of the Senate to investigate problems relating to reforestation. Out of the hearings of this committee the McNary-Clarke Bill (discussed in detail below) was evolved, embodying the ideas of the Snell Bill in part and receiving a virtually united support among foresters and forest interests.

National Legislation in Brief

1876—$2000 appropriated to employ a competent man to investigate timber conditions in the United States.

June 30, 1886—Act creating Division of Forestry in Department of Agriculture.

March 3, 1891—President authorized to establish Forest Reserves. Yellowstone Park Timberland Reserve proclaimed by President Harrison on March 30, 1891.

June 4, 1897—Present National Forest Act passed.

July 1, 1901—Division of Forestry becomes Bureau of Forestry.

February 1, 1905—Bureau of Forestry becomes Forest Service.

March 1, 1911—Weeks Law passed.

April 11, 1921—Snell Bill introduced in Congress.

May 2, 1921—Capper Bill introduced in Congress.

December 15, 1923—McNary-Clarke Bill introduced in Congress.

April 23, 1924—McNary-Clarke Bill passed House.

June 6, 1924—McNary-Clarke Bill passed Senate.

HOW TO PLANT TREES

In planting a tree the first consideration is the kind of soil in which the tree must grow, the climate and the species that will thrive. Thought must be given to the location of the tree, the space it will have in which to develop and the variety that grows best in the vicinity. It is well, also, to consider whether it is not better to plant trees of long life, such as the oak or sycamore, instead of trees like the silver maple or poplar that mature after a short span of life. Whatever the choice of the tree, it is deserving of careful thought.

It may be that in nearby wooded sections there are many young trees, saplings or evergreens. This, of course, makes an easy source of supply, with the advantage of obtaining trees that live well in the vicinity. Experience shows, on the other hand, that it is often more satisfactory to buy nursery trees especially raised for transplanting. As a piece of general advice it might be said that evergreens of five feet in height and deciduous trees up to 12 feet, raised in a nursery, will give the best results.

Once the problem of selecting the proper trees has been solved, there come the details of preparing for planting. Care must be taken of the tree. The roots must not be bruised, or allowed to dry, and moist earth should be kept around them until just before they are put in the ground. This is extremely important, because a few moments of ill-advised exposure of the roots to the sun, wind or dry air will injure the future of the tree.

Unless the delivery man has more than the average affection for a tree, it is likely to arrive with some broken or bruised roots. These should be pruned, and at the same time the top of the trees can be shaped up. The pruning should be done cleanly with a sharp pruner.

There are supporters of both spring and fall as the time for planting deciduous trees. Both have good arguments. If one were to lay down a general rule, however, it would be safe to say that all trees except evergreens can be planted at any time during the period between their going to sleep in the fall and awakening in the spring, and when the ground is not frozen. In the northern states the early spring is the best time for the inexperienced planter. Evergreens can be put into the ground in the late spring and during the latter part of August and the first of September.

A cool and cloudy day is the best for planting. In preparing the hole for the tree it should be made large enough to hold the roots extended normally. It should be deep enough for a six-inch layer of good loam before the roots are put in. The soil should be carefully worked around the roots with a pointed stick. No air spaces should be left, and it is well to soak the soil around the roots so that the tree will stand firmly. Most trees should be planted two or three inches lower than in the nursery.

There can be no fixed rules for spacing trees. Along streets they will range from 30 to 80 feet apart, depending upon the variety used. Except along highways, it is best to plant trees fairly near together, and the ones that crowd can be cut out later.

If the tree planter has not pruned his tree before he put it in the ground, it should be done immediately afterward. Frequently there is too little rather than too much pruning at the top. The tree top should balance the root system. Many tree planters find it best to remove all the side branches of the deciduous tree, leaving only the leader or main shoot. This leader should not be pruned back in the deciduous variety. There is no need of pruning the top of evergreens at the planting time, and except in the case of some varieties of cedar, it is undesirable.

The work is not over when the tree is in the ground and the soil packed about it. Where there is likely to be strong wind the tree should have the support of a strong stake reaching up into the lower branches. Guards should be around some trees, particularly along the street. For the first two years the base soil will need cultivation. As the trees grow they will need pruning—a question of individual judgment governed by the shape of the tree.

SELECTED LIST OF TREES

Trees for Northeastern United States

DECIDUOUS OR BROADLEAFED TREES

Black Walnut (Juglans nigra)
Bitternut Hickory (Hicoria cordiformis)
Shagbark Hickory (Hicoria ovata)
Paper Birch (Betula papyrifera)
Beech (Fagus grandifolia)
White Oak (Quercus alba)
Swamp White Oak (Quercus bicolor)
Bur Oak (Quercus macrocarpa)
Black Oak (Quercus velutina)
Red Oak (Quercus borealis maxima)
Pin Oak (Quercus palustris)
American Elm (Ulmus americana)
Cork Elm (Ulmus racemosa)
Tulip-tree (Yellow Poplar) (Liriodendron tulipifera)
Cucumber Tree (Magnolia acuminata)
Sycamore (Platanus occidentalis)
Black Cherry (Prunus serotina)
Coffee-tree (Gymnocladus dioicus)
Sugar Maple (Acer saccharum)
Red Maple (Acer rubrum)
Black Gum (Nyssa sylvatica)
White Ash (Fraxinus americana)
Green Ash (Fraxinus pennsylvanica lanceolata)

CONIFEROUS OR EVERGREEN TREES

White Pine (Pinus strobus)
Red Pine (Pinus resinosa)
White Spruce (Picea glauca)
Red Spruce (Picea rubra)
Hemlock (Tsuga canadensis)
Balsam Fir (Abies balsamea)
Red Cedar (Juniperus virginiana)

Trees for Southeastern United States

DECIDUOUS OR BROADLEAFED TREES

Pecan (Hicoria pecan)
Mockernut Hickory (Hicoria alba)
River Birch (Betula nigra)
Water Oak (Quercus nigra)
Willow Oak (Quercus phellos)
Laurel Oak (Quercus laurifolia)
Live Oak (Quercus virginiana)
Overcup Oak (Quercus lyrata)
Southern Red Oak (Quercus rubra)
Swamp Chestnut Oak (Quercus prinus)
Winged Elm (Ulmus alata)
Evergreen Magnolia (Magnolia grandiflora)
American Holly (Ilex opaca)
Tupelo Gum (Nyssa aquatica)
Persimmon (Diospyros virginiana)
Cabbage Palmetto (Sabal palmetto)

CONIFEROUS OR EVERGREEN TREES

Loblolly Pine (Pinus taeda)
Shortleaf Pine (Pinus echinata)
Spruce Pine (Pinus glabra)
Longleaf Pine (Pinus palustris)
Slash Pine (Pinus caribaea)
Carolina Hemlock (Tsuga caroliniana)
Bald Cypress (Taxodium distichum)
Southern Red Cedar (Juniperus lucayana)

Trees for the Prairie States

DECIDUOUS OR BROADLEAFED TREES

Black Walnut (Jublans nigra)
Cottonwood (Populus deltoides)
Bur Oak (Quercus macrocarpa)
Hackberry (Celtis occidentalis)
American Elm (Ulmus americana)
Sycamore (Platanus occidentalis)
Box Elder (Acer negundo)
Green Ash (Fraxinus pennsylvanica lanceolata)
Hardy Catalpa (Catalpa speciosa)

CONIFEROUS OR EVERGREEN TREES

White Pine (Pinus strobus)
Western Yellow Pine (Pinus ponderosa)
Jack Pine (Pinus banksiana)
Western White Spruce (Black Hills, S. D. form.—Picea glauca albertiana)
Douglas Fir (Rocky Mountain form.—Pseudotsuga taxifolia)
White Fir (Rocky Mountain form.—Abies concolor)
Arborvitae (Thuya occidentalis)
Red Cedar (Platte River, Nebr. form.—Juniperus virginiana)
Rocky Mountain Red Cedar (Juniperus scopulorum)

Trees for Northern Rocky Mountain States

DECIDUOUS OR BROADLEAFED TREES

Balsam Poplar (Populus balsamifera)
Narrowleaf Cottonwood (Populus angustifolia)
Box Elder (Acer negundo)
Green Ash (Fraxinus pennsylvanica lanceolata)
American Elm (Ulmus americana)

CONIFEROUS OR EVERGREEN TREES

Western White Pine (Pinus monticola)
Western Yellow Pine (Pinus ponderosa)
Western Larch (Larix occidentalis)
Engelmann Spruce (Picea engelmannii)
Blue Spruce (Picea pungens)
Douglas Fir (Pseudotsuga taxifolia)
Western Red Cedar (Giant Arborvitae (Thuya plicata)

Trees for Southern Rocky Mountain States

DECIDUOUS OR BROADLEAFED TREES

(Points below approximately 1500 feet elevation)

Black or Yellow Locust (Robinia pseudoacacia)
Pepper Tree (Schinus molle)
Cottonwoods (Populus macdougallii, P. wislizenii.
Cedar Elm (Ulmus crassifolia)
Hackberry (Celtis reticulata, C. mississippiensis)
Osage Orange (Toxylon pomiferum)
Huisache (Acacia farnesiana)
Cat's Claw (Acacia greggii)
Ratema or Horse Bean (Parkinsonia aculeata)
China Tree (Melia azedarach)
Giant Cactus (Carnegiea gigantea)
Joshua-tree (Yucca brevifolia)

(Points above approximately 2500 feet elevation)

Mexican Walnut (Juglans rupestris)
Narrowleafed Cottonwood (Populus angustifolia)
Wislizenus Cottonwood (Populus wislizenii)
Blue Oak (Quercus oblongifolia)
Arizona White Oak (Quercus arizonica)
Emory Oak (Quercus emoryi)
Arizona Sycamore (Platanus wrightii)
Mexican or Willowleaf Cherry (Prunus salicifolia)
Black or Yellow Locust (Robinia pseudoacacia)
Large-tooth Maple (Acer grandidentatum)
Box Elder (Acer negundo)
Green Ash (Fraxinus pennsylvanica lanceolata)
Southwestern Ash (Fraxinus velutina)

CONIFEROUS OR EVERGREEN TREES

(Points below approximately 1500 feet elevation)

Himalayan Pine (Pinus excelsa)
Monterey Pine (Pinus radiata)
Digger Pine (Pinus sabiniana)
Monterey Cypress (Cupressus macrocarpa)
Deodar Cedar (Cedrus deodara)

(Points above approximately 2,500 feet elevation)

Western Yellow Pine (Pinus ponderosa)
Mexican White Pine (Pinus strobiformis)
Mountain or Rock Cedar (Juniperus mexicana)
Arizona Cypress (Cupressus arizonica)
Smooth Cypress (Cupressus glabra)

Trees for North-Pacific States

DECIDUOUS OR BROADLEAFED TREES

Black Cottonwood (Populus trichocarpa)
Golden Chinquapin (Castanopsis chrysophylla)
Oregon Oak (Quercus garryana)
Cork Elm (Ulmus racemosa)
Broadleafed Maple (Acer macrophyllum)
Pacific Dogwood (Cornus nuttallii)
Madroña (Arbutus menziesii)
Oregon Ash (Fraxinus oregona)

CONIFEROUS OR EVERGREEN TREES

Western White Pine (Pinus monticola)
Western Yellow Pine (Pinus ponderosa)
Western Larch (Larix occidentalis)
Sitka Spruce (Picea sitchensis)
Western Hemlock (Tsuga heterophylla)
Douglas Fir (Pseudotsuga taxifolia)
Grand Fir (Abies grandis)
Noble Fir (Abies nobilis)
Western Red Cedar (Giant Arborvitae (Thuya plicata)
Lawson Cypress (Chamaecyparis lawsoniana)
Western Yew (Taxus brevifolia)

Trees for California

DECIDUOUS OR BROADLEAFED TREES

(Points below approximately 1500 feet elevation)

Washington Palm (Washingtonia filifera)
California Walnut (Juglans californica)
English Walnut (Juglans regia)
Royal Walnut—hybrid (
Fremont Cottonwood (Populus fremontii)
Valley Oak (Quercus lobata)
California Blue Oak (Quercus douglasii)
California Live Oak (Quercus agrifolia)
Wislizenus Oak (Quercus wislizenii)
California Sycamore (Platanus racemosa)
California Box Elder (Acer negundo californicum)

(Points above approximately 1500 feet elevation)

Black Walnut (Juglans nigra)
California Black Oak (Quercus californica)
Tanbark Oak (Quercus densiflora)
Maul or Canyon Live Oak (Quercus chrysolepis)
Madroña (Arbutus menziesii)
California Laurel (Umbellularia californica)
California Dogwood (Cornus nuttallii)
Oregon Ash (Fraxinus oregona)

CONIFEROUS OR EVERGREEN TREES

(Points below approximately 1500 feet elevation)

Torrey Pine (Pinus torreyana)
Bishop Pine (Pinus muricata)
Monterey Pine (Pinus radiata)
Canary Island Pine (Pinus canariensis)
Chili Pine (Araucaria imbricata)
Himalayan Pine (Pinus excelsa)
Digger Pine (Pinus sabiniana)
Bristlecone Fir (Abies venusta)
Monterey Cypress (Cupressus macrocarpa)
Redwood (Sequoia sempervirens)
California Juniper (Juniperus californica)

(Points above approximately 2,000 feet elevation)

Digger Pine (Pinus sabiniana)
Western Yellow Pine (Pinus ponderosa)
Coulter Pine (Pinus coulteri)
Digger Pine (Pinus sabiniana)
Douglas Fir (Pacific form.—Pseudotsuga taxifolia)
Bigtree (Sequoia washingtoniana)
Monterey Cypress (Cupressus macrocarpa)

TREE-LINED HIGHWAYS

Trees lining the highways—making cool, green-shaded boulevards—while they do not on the surface add to the forest assets of the country, plant in the minds of the people an appreciation of trees. With the rapid increase in automobile ownership and the extension of motor highways throughout the United States, roadside tree planting and conservation has become an essential part of this development. Civic and patriotic organizations, property owners and many types of associations as well as governmental agencies, are taking an active part in this work.

So widespread is the extent of this activity that it is difficult of tabulation and summary. The Harding Memorial Highway, the Jefferson Davis Memorial Highway and sections of the great Lincoln Highway are instances of roadside tree planting by various public groups, taking this means of creating durable and beautiful memorials. A number of the states have embarked upon extensive programs of highway beautification, and some of them exercise control over the planting conducted by private groups along the highways.

Massachusetts has planted more than 50,000 trees along her highways recently. The State was aroused early in 1924 by the prospect of withdrawal of funds for the upkeep of the hundreds of thousands of trees already lining her highways, with the result that the funds were not only forthcoming but were increased. The State of Washington has inaugurated a program contemplating the setting out of some two million trees. Pennsylvania and Michigan have large programs, and New Jersey communities have shade tree commissions carrying on this work.

There is a growing appreciation of the need of certain regulation of artificial roadside tree planting. General rules are being worked out to govern the extent of the planting by the width of the right of way; to prevent the obscuring of intersections; to give beauty by natural groupings of trees instead of monotony by even spacing; to make planting on curves safe and otherwise to direct this important work.

The following is a list of recognized highways on which projects for roadside tree planting are contemplated or are under way, or which offer opportunity for beautiful highway development:

National

Bankhead Highway, Washington, D. C., to San Diego, California.
Dixie Highway, Sault Ste. Marie, Michigan, to Miami, Florida.
Dixie-Overland, Savannah, Georgia, to San Diego, California.
Evergreen National Highway, Victoria, B. C., to El Paso, Texas.
George Washington National Highway, Seattle, Wash., to Savannah, Ga.
International Peace Highway, Quebec and Rouses Point, N. Y., to Laredo, Texas, and Mexico City, Mexico.
Jackson Highway, Chicago, Ill., to New Orleans, La.
Jefferson Highway, Winnipeg, Canada, to New Orleans, La.
King of Trails, Winnipeg, Canada, to Galveston, Texas.
Lakes to Gulf Highway, Duluth, Minn., to Galveston, Texas.
Lee Highway, Washington, D. C., to San Diego, Cal.
Lincoln Highway, New York to San Francisco.
Lone Star Route, Chicago, Ill., to Brownsville, Texas.
Meridian Highway, Winnipeg, Canada, to Laredo, Texas.
Mississippi River Scenic Highway System, Duluth, Minn., to New Orleans, La.
National Old Trails Road, Washington, D. C., to Los Angeles, Cal.
Old Spanish Trail, St. Augustine, Fla., to San Diego, Cal.
Pacific Highway, Vancouver, B. C., to San Diego, Cal.
Pershing Way, Winnipeg, Canada, to New Orleans, La.
Pike's Peak Ocean to Ocean Highway, New York, to San Francisco.
Roosevelt National Highway, Oyster Bay, N. Y., to Los Angeles, Cal.
Theodore Roosevelt International Highway, Portland, Me., to Portland, Oregon.
Victory Highway, New York to San Francisco.
Yellowstone Trail, Plymouth, Mass., to Seattle, Washington.

Interstate

Albert Pike Highway, Hot Springs, Arkansas, to Colorado Springs, Colorado.
Arrowhead Trail, Los Angeles, California, to Salt Lake City, Utah.
Ben Hur Highway, St. Louis, Missouri, to Fort Dodge, Iowa.
Blackhawk Highway, Beloit, Wisconsin, to Dixon, Illinois.
Capital Route, Omaha, Nebraska, to Austin, Texas.
Chicago, Kansas City and Gulf Highway, Chicago, Illinois, to Galveston, Texas.
Cornhusker Highway, Sioux City, Iowa, to Oklahoma City, Oklahoma.
Custer Battlefield Highway, Omaha, Nebraska, to Glacier National Park, Montana.
Dallas-Canadian-Denver Highway, Galveston, Texas, to Boulder, Colorado.
Detroit-Lincoln-Denver Highway, Detroit to Denver.
Geysers-to-Glaciers Highway, Yellowstone, to Glacier Parks.
Lackawanna Trail, Delaware, N. J., to Binghamton, N. Y.
Lewis and Clark Highway, Lewiston, Idaho, to Missoula, Montana.
Logan-Lee Highway, Rock Island, Illinois, to Paducah, Kentucky.
National Midland Trail, Eastern Division, East St. Louis, Ill., to Washington, D. C.
National Park to Park Highway, Circuit of National Parks.

Ozark Trails, Kansas City, Hannibal, St. Louis and Memphis to Denver, Las Vegas and El Paso.
River to River Road, Davenport, Iowa, to Omaha, Nebraska.
South West Trail, Chicago, Illinois, to El Paso, Texas.
White River Trail, Springfield, Mo., to Ponca City, Oklahoma.
Yellowstone Highway, Denver, Colorado, to Yellowstone, National Park.

THE BOY SCOUTS AND FORESTRY

One of the most important means of assuring a continued sentiment in support of the forestry movement is the mobilization of the young people, and perhaps the most consistently active organization in this direction is the Boy Scouts of America. With woodcraft and forestry, and other outdoor achievements of knowledge, a part of the Scout's study for which he receives merit badges, this organization of young Americans has already accomplished a great deal.

In several states, the forestry and conservation officials call freely upon the Boy Scouts for assistance. The Conservation Commissioner of Massachusetts has declared that he will grant to any troop a permit to make camp in a State Forest, knowing that the camp will be left in good order and no unquenched fire will be left to burn the forest. The Scouts have, in fact, made a name for themselves in forest fire fighting, particularly during the war when they were recruited to patrol the trails in the National Forests, replacing the men who had gone to war. On one occasion they located many black walnut trees needed by the Government for airplane construction.

In many States the Boy Scouts are organized under the State Fire Warden as forest guides, having official recognition from the State. In New Jersey, Connecticut or Pennsylvania, for example, it is not uncommon to see a diminutive Scout directing a gang of husky amateur fire fighters. The Scouts have cut many miles of trail, making fire fighting easier. Living as much as they can in the forest, they study the kinds of trees, the diseases that affect them, and acquire both an acquaintance and affection for them. They wear their merit badge for efficiency and knowledge in the branch of forestry with great pride, and they constitute an important potential force in carrying a comprehensive national forest policy to its conclusion.

THE FARMER AND HIS WOODLOT

Of the 469,000,000 acres of forested and denuded forest land in the United States, approximately 150,000,000 acres are in farm woodlots. This proportion of nearly one-third of the actual and potential forest area in the hands of farmers shows the vital necessity of these areas being managed so as to return the maximum to the owner and to contribute as largely as possible to the solution of the problem of future timber supply.

Because of his permanency and his interest in the land, the farmer should be in the forefront of timber growers. In the wood-producing acres of his farm, or the acres that are more fitted for trees than crops, he has a profitable asset. They can or should supply his own demands for timber as well as some of the local demand. They do or should constitute a profitable adjunct to his agricultural efforts.

The average farmer is not a forester. He does not need to be. But to get the maximum return from his woodlot he must know certain fundamentals of forestry; what trees to cut, what trees to grow, how to govern his cutting, what care and protection is necessary and other details. He needs advice concerning the management of his farm forest in order that it may be a source of continuing profit and supply.

Providing the farmer with this advice is a practically new phase of forestry work. It has been done in a more or less desultory fashion for perhaps fifteen years. Within the last two years, however, it has been taking definite form and is now in a state of development and change. With varying degrees of intensiveness, education of landowners in timber growing is being carried on by State Departments and universities in 32 states. To a limited extent it is being aided by the farm extension service of the United States Department of Agriculture and by the Forest Service.

Covering 10 of the northeastern states a national forest extension committee has been organized to further this work as an extension service of the different agricultural colleges. This activity enlists the services of expert foresters, whose service is largely educational showing the farmer how to value his woodlot, how to sustain it and how to market its products.

In several states, particularly Ohio and Iowa, encouragement of farm woodlot production is the chief forestry problem. The forestry agencies direct particular attention to this phase of the work, issuing bulletins, giving advice as consultants, making farm woodlot demonstrations and otherwise assisting the farmer. States maintaining state nurseries with a surplus of seedlings are in a position to help the farmer reforest denuded areas on his farm.

This work, however, is still in the process of development. The details of coöperation between foresters and the already constituted agricultural extension agencies have still largely to be worked out. The Forest Service is studying this activity, and already an important start has been made to bring the farm woodlot into the important position it should hold with relation to the forest problem.

TREES WITH FAMOUS NAMES

Although many millions of trees people the forests of the United States doing their economic duty, a few have been singled out by history to play famous parts and to stand as individual memorials to great events in the life of America. Symbolizing, fully as well as a tablet or pillar could do, some significant achievement, these trees represent the peculiar fitness of trees as memorials, and it is specially appropriate that they should have a Hall of Fame of their own.

Some distinguished trees stand out by reason of their age, such as the General Sherman Sequoia in the Sequoia National Park of California, whose age is reckoned at 40 centuries, and whose diameter is 36½ feet and towering height 280 feet. Many of the redwoods and sequoias are nearly equally as venerable as this one representative.

When Charles Sumner was Senator from Massachusetts he sent an acorn from a tree near the tomb of Washington at Mount Vernon to the Czar of Russia. This acorn grew to an oak in the palace grounds at Petrograd, and in turn produced an acorn that was planted in the White House grounds in Washington in 1904. In Washington there are to be found other famous trees, including the Treaty Oak under whose branches an important treaty was signed with the Indians.

While the Washington Elm in Cambridge, Massachusetts, where the General was supposed to have taken over command of the Colonial Army, is no more, a tablet marks the spot where it stood so long to

commemorate the event. On the campus of the University of Rochester in New York is the Shakespeare Memorial Oak, grown from a young tree from Stratford-on-Avon. In North Carolina is the Battleground Oak which viewed the battle of Guilford Courthouse.

To attempt to enumerate all of the famous trees would be impossible. They stand, however, as sentinels in the history of the new country, sturdily typifying the courage, genius and leadership on which and by which it was founded. They entitle all trees to the first consideration as man's memorials.

AMERICAN LEGION AND FORESTRY

The American Legion since its inception has been active in the planting of trees and the conservation of American forests. This activity has been manifest in many ways, from the actual planting of a 5000-acre forest in Herkimer County, New York, to the planting of memorial trees with individual markers for men who gave their lives in the military service during the World War.

Legion conventions have repeatedly advocated the conservation of our national natural resources. At the Third National Convention, held in Kansas City, Missouri, in 1921, a resolution was passed which went on record "as favoring the memorialization of public highways, streets and parks, particularly by tree planting and the erection of tablets." The Fifth National Convention, held in San Francisco, California, in 1923, declared, "We recommend a continuation of the air patrol of the great forest districts. This work not only tests machines and personnel but it pays excellent dividends in the way of timber saved from destruction from fires. It is one of the few direct ways the military can pay part of its own way."

Another resolution unanimously adopted at San Francisco said: "Whereas, the redwoods belong to the nation, and whereas the matchless redwood forests of Humboldt County, California, are, in our opinion an asset of incalculable value to the nation; and whereas the citizens of Humboldt County have been foresighted enough to lead the fight against their destruction, be it resolved that we, the American Legion, do hereby urge that the people of the United States support the program for saving these monarchs of the forest and pledge their support to this end."

The Legion early saw the advantage of planting trees as memorials. The American Legion Memorial Forest of Herkimer County was started in 1921 and is now almost completely planted. In Newport News, Virginia, members of the Legion took up tree-planting as their part of a "city beautiful" campaign, and persuaded hundreds of householders to plant shade trees on their property. Almost a house-to-house campaign was conducted in behalf of this project. Legionnaires of Minneapolis have planted more than 1000 high-arched elms four abreast, two on either side of parallel paved boulevards composing the Victory Memorial Driveway. An example of the keen interest of Legionnaires in such a project is offered in the fact that a post of less than 100 members in Sigourney, Iowa, bought a 30-acre plot, laid it out as a public park, and attended to tree-planting on it. These few men paid $4500 into the project.

There are 11,000 posts of the American Legion, and the best available figures at national headquarters show that fully 2500 of the posts have taken active part in community planting or conservation. Where trees are planted as individual memorials, each is equipped with a small metal tablet giving the name, age and military organization of the veteran so memorialized.

Arbor Day generally is accepted by members of the Legion as the occasion for the planting of memorial trees. Where the trees are planted for shade along some municipal road, or in a group as a memorial grove, provision is made for their proper care until they have assumed substantial proportions.

TREE SEEDS SENT OVERSEAS

"Trees growing from the seeds offered by America will perpetuate in the French forests the remembrance of the brotherhood-in-arms of America and France. These saplings will be given a place in the forests of the devastated regions where they will recall the assistance tendered by America to France during the war and during the work of repairing her ruins."

In these words M. Jacques Carrier, Director-General of Waters and Forests in France, expresses his appreciation to Charles Lathrop Pack, president of the American Tree Association, who has personally, and in the name of the Association, donated annually millions

of tree seeds to France, England and other European countries, following up the precedent established in 1920 by the American Forestry Association, when he was president of that organization.

The seeds sent to France are shipped to arrive in February so that they may be put immediately into nurseries. They have been divided among the nurseries established in the devastated regions, although the largest quantity has been sent to the Forestry School and Arboretum at Les Barres in Loiret. Here has been collected one of the most complete collections of trees and shrubs in the world, and in connection with the school research is carried on and a large nursery maintained.

Both André Chèron, Minister of Agriculture, and M. L. Pardé, director of the Barres School, have reported important results. Douglas Fir seeds have been the predominating species sent, proving themselves highly adaptable. M. Pardé also reports that much valuable information has been obtained from plantations made with seeds of the Sitka spruce, eastern larch and white ash.

In a letter written in February, 1924, Director-General Carrier acknowledges the receipt of the latest shipment as a valuable gift " to contribute to the reforestation of the territories devastated by the war or impoverished by the exploitation to satisfy the needs of the Army." He adds: " Thanks to your generous activity, this species so interesting from all points of view and too little represented in France up to now, will grow in the most barren corners and in a few decades tall trees, with ornamental foliage, will recall to the generations to come the cordial aid that you have given us."

In England there is being carried forward a program of intensive reforestation under the Forestry Commission headed by Major-General Lord Lovat. One hundred and fifty thousand acres are being reforested by direct State action and 100,000 more acres by State assistance to private owners and local authorities. In this work the gift of American Tree Association seeds has been of considerable aid.

Lord Lovat, during a recent visit to North America to attend the British Empire Forestry Conference, reported that the seeds have reached literally all corners of the British Isles. The Douglas Fir did particularly well in Ireland. The 1921 seeds prospered when planted in the Scotch Highlands at nurseries of South Laggan among the Grampian Mountains. The 1922 seeds were divided

between the Royal English and Royal Scottish Arboricultural Societies on conditions that two to four pounds be given to members for use. Some seeds were sent to northern and southern Ireland and others have been planted in the Windsor Nurseries of the Forestry Commission. Similar disposition has been made of the 1923 and 1924 shipments.

Seeds have also been sent to be used in Italy, Czechoslovakia, Belgium and Austria. These were largely for experimental purposes, although considerable planting was done in Belgium.

CITY AND TOWN FORESTS

Of all of the phases of the forestry movement there is one which has received proportionally small notice but which is, nevertheless, of great potential importance in working out the whole broad problem of recreating our forest resources. This phase is the city and town forests, the village woodlot, or, as it is known in Europe, the communal forest.

Although no complete survey of city and town forests has ever been made, it is safe to say that there are at least 500,000 forested acres owned by these political units. New York, Massachusetts, Pennsylvania, New Hampshire, North Carolina and Connecticut are the six most active states in this direction, although the movement is spreading rapidly in other states.

The municipal or town forest may serve one or more purposes. It may be created to protect the local water supply and watersheds. It may be established as a community windbreak. It may be employed to put to work lands owned by the community or reverted to it for non-payment of taxes. It may be set aside primarily as a local timber supply, providing easily accessible and cheaper wood and assuring a certain amount of assistance in a period of unemployment.

Instances are frequently cited of the success of the community forest in various places in Europe. One forest is found in Forbach in the Black Forest of Germany, virtually relieving the community of taxes before the war. Other similar forests are found in France, Germany and Switzerland, managed for a sustained yield, cut selectively and constituting a valuable local asset.

Such a program to succeed in the United States would require a very general adoption by cities and towns, rolling up such a volume of

wooded resources as to meet an appreciable proportion of the local demand. It goes hand in hand with the farmer's development of his woodlot and state acquisition of forest areas. It fits into the whole scheme but is by no means a solution of itself.

The City of Fitchburg, Massachusetts, claims the distinction of having officially set aside the first community forest in the United States. The laws of the State authorize such action on the part of communities, and Fitchburg took the initiative in 1914, doing so with the threefold purpose of providing demonstration of practical forestry, of getting profit from the sale and use of forest products and resources and of furnishing a site for public recreation. In 1921, 100,000 feet of pine suitable for box boards were cut from the comparatively small tract, netting the city a profit of $417.09.

Other Massachusetts communities—including Petersham which forested its poor farm; Walpole, which enlisted the aid of the schools; Brookline, which manages its watershed along practical forestry lines—have taken action. The Massachusetts Forestry Association has made an offer to plant 5000 trees, or five acres, for any town or city legally establishing a local forest of 100 acres or more. About 100 communities have considered or are considering such action.

Rapidly increasing its distribution of nursery seedings, the State of New York has encouraged the creation of local forests. Nearly 200,000 acres are believed to be now so set aside in the State. Rochester, Glens Falls, Gloversville and the City of New York are among the 40 or more communities with home forests. Cincinnati and Oberlin are among the five Ohio communities with local forests. Seven cities or towns in Colorado boast community forests. In New Jersey more than 35,000 acres are so owned.

This activity shows the gradual growth of the movement, which has progressed now to a point where the momentum of public sentiment should carry it more rapidly forward. The following of a list prepared by the United States Forest Service and designed to show approximately the situation in the establishment of community forests:

State	Area	Number of communities	Average area per community
	Acres		*Acres*
Alabama	19,232	2	9,616
California	7,640	2	3,820
Colorado	29,630	7	4,233
Connecticut	14,322	11	1,302
District of Columbia	1,632	1	1,632
Idaho	160	1	160
Illinois	25,000	1	25,000
Kansas	200	1	200
Maine	803	2	402
Maryland	7,400	4	1,850
Massachusetts	46,160	32	1,442
Michigan	1,015	3	338
Minnesota	2,235	1	2,235
Nebraska	42	1	42
New Hampshire	8,056	22	366
New Jersey	36,100	7	5,157
New York	169,000	40	4,225
North Carolina	26,864	16	1,679
Ohio	11,477	5	2,295
Oregon	4,800	1	4,800
Pennsylvania	18,733	22	852
Rhode Island	104	1	104
Texas	310	2	155
Utah	1,710	2	855
Vermont	1,845	6	308
Virginia	9,700	3	3,233
Washington	11,964	1	11,964
Total	456,134	197	2,315

FORESTRY AND THE PUBLIC SCHOOLS

Forestry instruction in the public schools is a field as yet only lightly touched as a means of creating a forestry sentiment among the future citizens who will feel the pinch of past forest depletion. In a handful of the states real action is being taken in this direction, usually in the states where an active forestry sentiment has already been established. In a number of others observance of Arbor Day in the schools is actively pushed. In others no tree planting or forestry work is done.

To obtain information on the extent of this activity, the American Tree Association sent questionnaires to educational authorities of the

states asking whether there is any provision of law for teaching forestry and whether any such work is being done without law. From the replies the following information has been compiled:

Louisiana.—State Board of Education requires that forestry be taught in upper elementary grades. Conservation Commission preparing a suitable textbook. Plan its use in all upper grades of the State.

Oklahoma.—Law requires teaching in schools but is not being carried out at present time.

Colorado.—Law requires tree planting by schools each year with reports to forester annually. Arbor Day actively observed.

Tennessee.—Law requires inclusion of study of forestry and plant life in every public school of State and one essay on forestry from each pupil. Carried out desultorily.

California.—Law requires elementary schools to give instruction "in nature study with special reference to agriculture and animal and bird life."

Alabama.—Interest stimulated by creation of new forestry department.

Connecticut.—Study of trees in connection with Nature study in elementary schools. Forests treated as a crop in vocational agricultural courses in high schools.

New York.—State Department of Education urges agricultural study in rural and grade schools with forestry angle. Extensive Arbor Day work attended with excellent results.

Pennsylvania.—Forestry project including in work in science course in seventh grade. Covers meaning of forests, values of trees, enemies of trees, tree planting, forest harvesting and effect of forests on weather and streams.

Iowa.—Forestry taught only in connection with other courses such as Nature and geology. Emphasized in connection with Arbor Day.

Rhode Island.—Law requires general observance of Arbor Day with suitable program. Commissioner of Education required to issue pamphlet covering such a program and essentials of forestry.

West Virginia.—Forestry taught in connection with required conservation course on nature study, agriculture and geography. Arbor Day observed.

North Dakota.—Nature study courses for elementary schools cover trees, shrubs and fruits. Arbor Day observed as well as tree planting weeks.

Virginia.—Forestry taught only in connection with Nature and agriculture.

Michigan.—Bulletins sent to public schools. No organized work.

Utah.—In connection with Nature study. Special programs for Fire Prevention Week.

Maine.—Incorporating forestry in connection with a new course in elementary science.

Texas.—Taught only in connection with Nature study.

Delaware, North Carolina, Illinois, New Jersey, Nevada, Massachusetts, Arizona.—Only work done is in connection with Arbor Day programs. Idaho.—Active work in schools for Fire Protection Week. No organized activity in Wyoming, Ohio, South Carolina, New Hampshire, Arkansas, Oregon, Montana.

FORESTRY AND THE SUMMER CAMP

With the summer camp taking an increasingly important position as an adjunct to our educational system, and with more than 100,000 boys and girls spending most of the summer in the out-of-doors, practical forestry is becoming an activity in camps for young people. The aroused interest of the country in the forest problem has made this phase of camp work both a popular and profitable endeavor, and has enlisted the coöperation of public officials and supporters of the forestry movement.

Camp Mishike at Winchester, Wisconsin, run by Dr. Hugh P. Baker, Warren B. Bullock and W. E. Sanderson, appears to have the distinction of performing the first real activity as a non-professional forestry summer camp. The theory on which the sponsors of this camp are proceeding is thus stated:

"Teaching the youngsters that Nature is neither a tool to be used nor an enemy to be conquered, but rather a friend to be cultivated is the major objective in this first forestry camp for boys. Not to make foresters of the boys but to inspire in them an appreciation of the Out-of-Doors is the keynote of every camp activity."

The staff of the camp is made up of trained foresters, who know how to take care of themselves in the woods and teach their young charges the same reliance. Camp Mishike is a part of a forest property of 1700 acres. Twelve thousand trees were set out in the camp nursery in the spring of 1923, and the goal is to restore on the camp's acreage the forest growth that once made that north country a woodland paradise. Reforestation has been started, necessarily being done before the camping season opens, but permitting the boys to learn the fundamentals of forestry in thinning out less valuable trees and aiding nature.

Mr. A. S. Gregg Clarke has launched a forestry program at his camp on Lake Dunmore in the Green Mountains of Vermont. Boys in the Senior Wigwam at this one of his Keewaydin Camps "major in forestry." Situated on 1100 acres of forest land, near the properties of a large lumber company and staffed with trained foresters, the Wigwam follows a program of tree identification, study of tree infections, forest cover, erosion and flood prevention, natural and artificial reforestation, weeding and thinning, lumbering, protection

of young trees, slash disposal, curtailment of waste, fire prevention and investigation of areas more suited for forest than farm.

Mr. Clarke says: "Keewaydin feels that it is necessary to educate and interest our future leaders. The fastest growing tree requires at least a generation to reach maturity. Our Keewaydin boys can start a seed or seedling and live to see it attain commercial possibilities."

Many other camps encourage acquaintanceship with the trees in the surrounding forest, stimulating an affection for them in the campers. Some are planning to embark on an active forestry work, adding to the wooded assets of the camp as well as educating along this important line.

CHARLES LATHROP PACK FOUNDATIONS

Convinced that the future success of the forestry movement depends primarily upon an aroused and active public sentiment, Charles Lathrop Pack, president of the American Tree Association, has established forestry foundations in seven schools of forestry. These are annual awards, made by the institutional authorities themselves and consisting of the annual income of $50 to $100 from permanently invested funds held in trust in each case in high class bonds.

Charles Lathrop Pack Forestry Foundation Prizes have been established in the following schools of forestry:

New York State College of Forestry, Syracuse University, Syracuse, New York; College of Forestry, University of Washington, Seattle, Washington; The Division of Forestry, University of California College of Agriculture, Berkeley, California; Department of Forestry, The Pennsylvania State College, State College, Pennsylvania; Department of Forestry, University of Michigan, Ann Arbor, Michigan; Department of Forestry, New York State College of Agriculture at Cornell University, Ithaca, New York; Yale University School of Forestry, New Haven, Connecticut.

"Promoting the cause of forestry as it relates to the public, or from the public point of view," is the fundamental aim of Mr. Pack's prizes. They are given to the forestry schools outright, existing as forestry foundations but administered and awarded by the authorities themselves.

"It is my hope and desire," Mr. Pack says, in explanation of his

aim in establishing these foundations, " that we may arrive at some new methods of arousing public interest in forestry. At least, we will hope better to equip foresters to sell their ideas to the public and to make their statements more interesting and effective. I do not seek to establish prizes for scientific forestry articles. Rather do I wish to aid foresters to greater facility in writing and speaking; in the highly important work of presenting to the lay public the fundamental thoughts and aims of the forestry movement."

In a letter accepting the gift of the endowed prize, Dr. John M. Thomas, president of Pennsylvania State College, declared his hearty appreciation of the purpose of the prize. He expressed the opinion " that all of our technical men have been inclined to neglect the cultivation of the ability to catch public attention and shape public opinion. Foresters have been no exception, and a prize to stimulate ability to impress facts and truths upon other minds cannot fail to be of large value. It will not only encourage individuals to cultivate the gift, but will call attention widely to the desirability of such effort."

Commending Mr. Pack's vision in not precluding the publication of articles winning the Pack Prize, Walter Mulford, Professor of Forestry at the University of California, declared that " the course itself will be improved by the background supplied by this prize."

Harold O. Cook, Chief Forester of Massachusetts, declared: " We are glad to learn that you are showing your interest in forestry in such a practical and effective way through prizes to students in forestry schools." Ralph S. Hosmer, Professor of Forestry at Cornell, declared that the prize is " most appreciated and that the staff feels that the income will be of material benefit in furthering the objects that you and we have fully in mind."

Dr. Hugo Winkenwerder, dean of the College of Forestry at the University of Washington, wrote: " We are especially pleased with the spirit in which the gift was made and the noble purpose you had in mind when making it."

Among others expressing appreciation and commendation of the aims of the Pack Prizes are: Dr. Henry Suzzallo, president of the University of Washington; M. B. Pratt, State Forester of California; Henry S. Graves, dean of Yale Forestry School and provost of the University; Professor J. A. Ferguson, Pennsylvania State College; John R. Effinger, dean of the College of Literature, Science and Arts of the University of Michigan; Dr. M. L. Burton, president of the

University of Michigan; Franklin Moon, dean of the New York State College of Forestry. The Forest Club of the University of Washington spread on its records a vote of thanks.

The following is the statement of the object of the Pack Foundation Forestry Prizes as stated by the Faculty of the Yale School of Forestry:

"The object of this prize is to encourage young foresters in the art of writing about forestry subjects in a way that will appeal to the general public and help enlist public coöperation. It is not enough that the forester should believe in his profession; he should be able to convince others of the worthiness of his cause, since without favorable public sentiment behind it, forestry can not succeed. This ability can be acquired by any forester who will view in proper light the various activities of his profession and who will consider himself as a public servant having the responsibility of keeping the people fully informed of such actual needs and real accomplishments in forestry as come to his attention. To this end he must learn to look for the features of special interest, to sense news values, and to write in simple and direct language devoid of technicalities a story which will appeal without the aid of exaggeration, which will be informative without being dull, and which will tend to impart to the reader some of the writer's own enthusiasm.

"The young forester who hesitates to write because of his lack of experience should bear in mind that what is wanted is not an essay which will require the weight of authority to give it value, but rather a story or article dealing with some definite problem or activity in forestry, something which appeals to him before undue familiarity has dulled his appreciation of it, and about which, having acquired the necessary information, he can write in a way that will carry that same fresh appeal to others. He will come to learn that the subject need not be new or novel and that more often chief appeal lies in the method of approach and the nature of the presentation.

"The forester who carries into the practice of his profession this attitude of mind will find that it does not hinder or retard his work or encourage superficiality, but serves rather to endow the otherwise trite and commonplace with new and deeper interest. And what is more, it will have a humanizing reaction upon him which will make for more cordial relations between the various and often conflicting interests involved in the solution of forestry problems."

FORESTRY ASSOCIATIONS

Creation of public sentiment in support of constructive forestry activity has been a question of leadership. The bringing about of adequate governmental organization has been dependent upon this leadership. In the progress to the point that the country has now reached this work has been furthered by many leagues, associations and societies of laymen in forestry actuated by an appreciation of the vital need of conserving and rebuilding the timber assests of the country.

A number of the forestry associations formerly active are now inactive or disbanded, having achieved or failed in their aims of building up a governmental organization in their states. Others have merged with larger groups, the better to carry on their work of public education and practical application. Still others have grown stronger and are essential factors in the work yet to be done.

THE AMERICAN TREE ASSOCIATION

The American Tree Association is the recruiting agency of the Tree Planting Army, which in April, 1924 had a total enlistment of more than 80,000 members. Its fundamental aim is the carrying on of educational work to put the "tree in forestry." It seeks, through the stimulation of public interest in one tree or a few trees, to mobilize activity in support of solution of the forestry problem. It is active, therefore, in support of all constructive forestry legislation, of a forest policy, of reforestation and forestry research and of all tree-planting movements.

Membership in the American Tree Association demands only one qualification—to have planted a tree. It involves no dues. There is, of course, the implied agreement to care for the tree so planted and to plant more trees to keep it company. The applicant for membership sends in his or her name and address, the kind of tree planted, where it was obtained and when and where it was planted and the application is signed by a witness of the planting. The applicant is then sent a certificate stating that "having, as a good citizen, planted a tree," he or she is elected a member of the American Tree Association and enrolled in the tree planting army.

The trees planted by its members are registered by the Association. They number many times the membership, however, since many volunteers for the tree planting army keep in training by planting more trees. No draft law is needed to swell the ranks. Clubs, schools, civic organizations and corporations have coöperated with the Association in furthering the program of tree-planting. Newspapers and business firms have given away seedling trees, and those who have received the young trees and planted them have been enrolled in the Association's army of good citizenship.

During the past year the General Federation of Women's Clubs has coöperated with the American Tree Association in its work. Every club a member of the Federation has been sent tree-day programs and tree planting suggestions. In some states this coöperation has extended to the offering of prizes by the state officials to the clubs planting the most trees. The members of these groups have been enrolled in the tree planting army.

One appeal made by the American Tree Association that has met nation-wide response has been that to celebrate the centennial of Arbor Day in 1972 by planting trees now. The vision that prompted this thought—a vision of valuable and beautiful trees at or near maturity when the one hundredth anniversary of the first Arbor Day arrives—has been widely applauded in the press and by far-seeing citizens generally. The editors of the country, seeing the educational possibilities of such a call, have furthered it in every way possible.

One phase of tree planting that the American Tree Association has successfully and widely sponsored has been that of memorial trees, groves and parks. It fostered the idea of Roads of Remembrance. While the Association has not sought to place the memorial tree above all other memorial plans or ideas, it points out the particular fitness of a growing, living tree as a symbol. It does, however, urge that whatever form of memorial there be established, it be given the proper setting of memorial trees, in the planting of which the entire community may have a part.

The result of many of these memorial plantings has been the beautification of many spots long neglected in thousands of towns throughout the country. Waste places were cleaned up. Creek and river fronts were beautified and walks and drives put in so that what one municipality did a neighbor was almost sure to copy.

One effect of the spreading of this type of community betterment by the judicious and general planting of trees has been to turn the attention of civic organizations to the question. The majority of them today have their tree-planting committees. City and town governments have been brought to appreciate the immense value of tree lined thoroughfares and pleasingly shaded entrances to their community.

Main- or trunk-line highway tree planting, also, has received attention and coöperation by the American Tree Association. A great deal has been accomplished in this direction. Much planting has been done along the Lincoln Highway. The road leading from this highway to the tomb of William McKinley at Canton, Ohio, has been beautified. Almost every community along the routes of the Bankhead Highway, the Lee Highway, the Dixie Highway and the Old Spanish Trails has been organized for this work. The American Tree Association has coöperated in the plans for the planting of the Harding Memorial Highway to the late President.

In its work the American Tree Association maintains a close contact with the editors of the nation's newspapers. It supplies them with educational and informational material both on the progress of tree planting and the forestry problem. It has frequent calls for special articles on both subjects. With the press aroused to the significance of the diminishing wood supply, and generally enthusiastic about both the idealism and practicality of tree planting, the editors have coöperated whole-heartedly with the American Tree Association. This spirit has been furthered by the knowledge that the Association has nothing to sell except the educational idea, which costs nothing to those who grasp it.

On the forestry side, the American Tree Association has been active both in supporting legislation and advocating a national policy. Through its president, Mr. Charles Lathrop Pack, it has coöperated in the National Forestry Program Committee, which has joined various interests in the formulation and support of a national forest policy. The Association has been represented before committees of Congress at the many recent hearings on proposed legislation.

In support of the McNary-Clarke Forestry Bill, the outcome of investigations made by the special committee of the United States Senate, the American Tree Association called upon its membership

to urge their Senators and Representatives to give their attention and support to this constructive measure. The Association has received hundreds of unsolicited letters from its members, stating that they have done this and enclosing replies from members of Congress that show the mobilization of sentiment among legislators in support of action to conserve and rebuild the forest assets of the country.

The activity of the Association's president, Mr. Pack, in sending abroad each year tree seeds to be used for the reforestation of devastated areas in France and to aid in recouping the forest resources of England, has made the Association an international figure. It has accomplished the desired result of amicable sentiment between countries. Further, it has achieved the aim of arousing Americans and the American press to ask: " What of the United States."

In order to keep closely in touch with forestry developments abroad, the American Tree Association has had various commissioners in Europe. Arthur Newton Pack, secretary of the Association, travelled widely on the continent to inspect forestry activity. In the fall of 1923, Richard W. Westwood made a report of investigation of the tree-planting progress in the American cemeteries abroad, as well as a report on the reforestation work being done in France. Nelson Courtlandt Brown, widely known forester, went abroad early in 1924, commissioned by the Association to make studies in a number of European countries.

The American Tree Association has the same officers and occupies the same building at 1214 16th Street, Washington, D. C., as the American Nature Association. The officers of the Tree Association are: Charles Lathrop Pack, President; Percival S. Ridsdale, Treasurer; Arthur Newton Pack, Secretary; Richard W. Westwood, Assistant-secretary, and Russell T. Edwards, Educational Director.

ASSOCIATION OF STATE FORESTERS

With a view to promoting coöperation in forestry matters between the states as well as with the Federal Government, the State Foresters, or equivalent officials in the states where forestry is an organized activity, joined together in November, 1920, in forming the Association of State Foresters. This organization, being more widespread in character, superseded several previous associations, such as the Association of Eastern Foresters.

While the membership of the Association is necessarily not large it is particularly important in quality, comprising men whose position in the forestry movement is one of official executive activity. Annual meetings are held at the call of the executive committee, and special meetings may be held on the decision of the same body or by the president at the request of five members. The annual membership fee is five dollars, and, while any state may be represented at the meetings by as many of the members of its forestry department as is desired, each state has one vote.

Besides the aim of promoting coöperation, the Association seeks to bring together the forestry officials for the discussion of problems of mutual interest. The organization is particularly of value in the consideration of both questions of legislation and method in carrying forward the forestry work in the several states.

The Executive Committee is: V. H. Sonderegger, State Forester of Louisiana, president; R. P. McLaughlin, State Forester of Montana, vice-president; Chapin Jones, State Forester of Virginia, secretary-treasurer; Robert Y. Stuart, secretary of the Department of Forests and Waters of Pennsylvania, and John S. Holmes, Forester of the North Carolina Geological Survey. The secretary's address is Charlottesville, Virginia.

AMERICAN INSTITUTE OF PARK EXECUTIVES and AMERICAN PARK SOCIETY

While the interest of this organization is directly in parks, their administration and their recreational value to the country, it is naturally found in support of forest preservation and restoration. Trees are essential to the beauty and utility of parks, and the Institute forms an active organization in support of conservation work.

The officers of the organization are: Theodore Wirth, Superintendent of Parks, Minneapolis, Minnesota, president; C. H. Meeds, executive officer of the City Park Department, Cincinnati, Ohio, vice-president; Will O. Doolittle, secretary-treasurer and Field Secretary, Minot, North Dakota. The Institute publishes an illustrated bi-monthly journal under the title of *Parks and Recreation.*

THE AMERICAN FORESTRY ASSOCIATION

By Ovid M. Butler, Secretary

The American Forestry Association is the oldest forestry association in America. It was first organized in 1875, and through a reorganization in 1882 it became the national forestry association of the United States, a place which it has since occupied. The Association sprang from the early recognition that the forests of the United States were being destroyed under a policy which reaped with wasteful rapacity and sowed with seeds of fire. It was founded on the sound principle that a permanent and sufficient supply of home-grown forests is essential to the Nation; that the forest bears an important and direct relation to stream flow and favorable soil conditions, and that a certain portion of our soil is chiefly adaptable to the growing of forests and must be used for that purpose if permanent national prosperity is to be achieved. It recognized that fire is the great enemy of forests, present and future.

Beginning with a small membership of men who foresaw the danger of an aimless and destructive policy of lumbering and forest depletion, the Association has grown steadily year by year, drawing to it great numbers of patriotic citizens who, alarmed at the rapidity with which the forests are being destroyed, have welcomed the opportunity of allying themselves with the national organization representing the public's interest in forest conservation.

The Association espoused, with vigorous leadership, the cause of forest conservation by wise use. To it more than to any other agency belongs the credit for having brought together the forest sentiment of the country and given life to the early forest movement of America. The American Forestry Association stands today with a long record of efficient public service back of it. The establishment of the Bureau of Forestry of the United States, which later became the present Forest Service, was largely due to its early influence. In the nineties, many of our National Forests in the West, then known as Forest Reserves, were saved to the people of the United States by its persistent efforts. During the days when the present Weeks Law, under which the National Forests are being acquired in the East, was being urged upon Congress, the Association was the rallying centre of leadership and was an influential factor in making that law possible.

During its early years The American Forestry Association sponsored the movement for the wise conservation of all natural resources. From an organization of a few hundred members, two decades ago, the Association has grown to a membership of more than 14,000 men and women, located in every state in the Union.

The Association is independent and non-commercial. It has no affiliation with any state or federal departments. It is dependent wholly upon its membership dues and contributions of those advancing its work. All its funds are devoted to furthering the objects for which it stands.

The broad purpose of the Association is to bring about through the development of enlightened public sentiment, a local and national appreciation of American forests and trees and of all the vital American interests which they represent. It seeks to advance national and local measures which will aid in meeting the permanent forest needs of the nation. It provides a means by which every citizen may definitely identify himself with the movement to conserve and rebuild our forests and to pass on to our children a wooded out-of-doors comparable in some degree with that which has built the nation and has supplied the vigor and ideals of its people.

Soon after its organization the Association began the publication of a periodical, which later was published under the name of *American Forestry*. On January 1, 1924, the name of the Association magazine was changed to *American Forests and Forest Life*. For years it has been, and still is, the only popular magazine of national scope devoted exclusively to forests. The magazine is the Association's principal medium of disseminating educational material in popular form to the public, and of stimulating public interest in the forests of the nation and the many things for which they stand, including wild life conservation and forest recreation.

The Association stands for a national forest policy which will be adequate to assure the people of the United States forests, in the future, equal to their needs. Its program calls for greatly increased appropriations by the federal government to be used in the acquisition of forest lands under the Weeks Law. The Association is working for a federal appropriation of one hundred million dollars expendable during the next ten years in the acquisition of forest lands in the East. It is likewise working for a national and state program of better forest

fire protection, increased reforestation of denuded lands, the elimination of waste in the manufacture and consumption of lumber, the establishment of state and town forests, extension of federal forest administration to cover not only the National Forest areas but other public lands chiefly suitable for timber production; sound laws for the protection of fish and game, more extensive federal policy of forest research and educational extension, reforms in present methods of forest taxation, etc.

In April, 1923, the National Conservation Association was absorbed by The American Forestry Association. Not only the conservation of forests, but all other natural resources of the nation is in consequence the broad field of The American Forestry Association.

As representing the public interest the Association is demanding that the natural resources of the federal government be handled under a conservation policy which will not be subject to the whims of politics but which will be a sound and lasting principle of use and perpetuation.

The principal officers of the Association are: George D. Pratt, Brooklyn, New York, President; George O. Vass, Washington, D. C., Treasurer; Ovid M. Butler, Washington, D. C., Secretary.

The Association has its headquarters in the Lenox Building, 1523 L Street, Washington, D. C.

NATIONAL CONFERENCE ON STATE PARKS

Encouragement of forestry work is an essential activity of the National Conference on State Parks, which represents a banding together of those interested in the creation of park systems by the States. The Conference supports the setting aside of areas not specially fitted for National Park status but yet worthy of being preserved for their scenic and recreational value. It meets annually and brings foresters and park executives together, as well as many others interested in the various phases of the work. Judge John Barton Payne, former Secretary of the Interior, is chairman of the Conference for the year 1924-25. Miss Beatrice M. Ward is secretary, and the offices of the Conference are in the Department of the Interior Building, Washington, D. C.

THE SOCIETY OF AMERICAN FORESTERS

Nineteen hundred and twenty-five will mark the twenty-fifth anniversary of the organization of the Society of American Foresters, the Association through which the trained and active foresters of the United States express the views of the profession and lead in shaping the policies and technique of forestry in America.

The Society was founded in 1900, at a time when the trained foresters in the United States could almost be counted on one's fingers. Its object, as expressed in its constitution, is "to further the development of technical forestry and the interests of the profession of forestry by encouraging achievement in the science of forestry, by creating opportunity for an interchange of views upon forestry and allied subjects, and by fostering a spirit of comradeship among foresters."

Active membership ("Senior Members" and "Members") is limited to men with technical training in forestry (or its equivalent), who at the time of election are residents of the United States or its possessions or of Canada, and who are actively engaged in forest work. The Society has always maintained high standards of membership requirements and a very conservative policy regarding admissions. The total membership is now slightly in excess of 1000, at least nine-tenths being active members.

For some years after the Society was founded, the majority of the members were more or less concentrated near the District of Columbia. As the membership increased and spread over the country, however, it became evident that the Society's objectives could better be attained by organizing local groups or Sections. There are now fourteen of these Sections, covering practically the entire country. Each Section holds frequent meetings for the discussion and interchange of ideas, while the parent Society holds an annual meeting for the transaction of business and the presentation of technical papers. This meeting is frequently held in connection with the annual meeting of the American Association for the Advancement of Science, with which the Society is affiliated.

In pursuance of the objects for which it was organized, the Society has always taken an active part in the evolution of an American forest practice, adapted to American sylvical and economic conditions.

Through its meetings, publications, and various committees, much has been done to stimulate and guide original work in forestry, to formulate principles and methods which can be applied to American forests, and to develop standards of forest practice. Among the numerous activities in which the Society has been or is engaged are the following:

The correlation of research in forestry, through standing committees and through representation in the National Research Council.

The formulation of a code of professional ethics for foresters.

The development of standards in forestry education.

The collection and preservation of material bearing on the history of forestry in the United States.

The compilation and standardization of forest terminology.

The standardization of forest fire protection methods, equipment, and records.

The classification of forestry literature.

The abstracting of forestry literature, through representation on the Board of Control of Botanical Abstracts.

While carrying on of forestry propaganda and active work in promoting forestry legislation are outside of the scope of the Society as an organization, its advice and assistance are frequently sought in matters pertaining to forests and forestry.

Commencing in 1905, there was published at more or less irregular intervals, later four times a year, the "Proceedings of the Society of American Foresters," consisting largely of papers delivered before meetings of the Society. Later, contributions from non-members were accepted. Beginning with 1917, the Proceedings was consolidated with the "Forestry Quarterly," which had been founded by Dr. B. E. Fernow and published under his supervision. The new publication, called the *Journal of Forestry,* is issued eight times a year, under the editorship of Raphael Zon, Director of the Lake States Forest Experiment Station, St. Paul, Minnesota. Being also the official organ of the Canadian Society of Forest Engineers and the only technical forestry periodical published in America, it reaches most of the active foresters in North America, as well as many in other parts of the world, and has a total circulation around 1500.

The governing body of the Society is an Executive Council, consisting (1924) of the following: President, Walter Mulford, head of

the Division of Forestry, University of California, Berkeley, California; Vice-President, R. T. Fisher, Director of Harvard Forest, Petersham, Massachusetts; Secretary, R. V. Reynolds, United States Forest Service, Washington, D. C.; Treasurer, F. W. Besley, State Forester, Baltimore, Maryland; E. H. Frothingham, Director, Appalachian Forest Experiment Station, Asheville, North Carolina; R. Y. Stuart, Secretary of Forests and Waters, Harrisburg, Pennsylvania; Prof. R. C. Bryant, Yale Forest School, New Haven, Connecticut; Raphael Zon, Director Lake States Forest Experiment Station, St. Paul, Minnesota; and Prof. B. P. Kirkland, College of Forestry, University of Washington, Seattle, Washington.

BRITISH EMPIRE FORESTRY CONFERENCE

One of the outstanding events in the forestry world during 1923 was the meeting in Canada from July 25 to September 7 of the British Empire Forestry Conference. Not only did this meeting serve to bring together delegates from the Dominions, Colonies and Protectorates of Great Britain and permit coördination of facts about their resources, but it brought into perspective the relation of the forest resources of North America to those of the rest of the world.

The Conference was convened on July 25 at Ottawa with an address of welcome by the Prime Minister of Canada, the Right Honorable W. L. Mackenzie King. General Lord Lovat, chairman of the British Forestry Commission, was elected as presiding officer of the Conference. The delegates interspersed sitting for the discussion of forestry problems with tours of the Canadian forest areas, starting with Quebec and New Brunswick and ending with a tour of the forests of Vancouver Island.

Addresses were made to the Conference dealing with the problems of forestry in the various far-flung corners of the British Empire, and among the speakers was William B. Greeley, Chief Forester of the United States, who described the forest situation of this country. Considerable attention was devoted to discussion of the scientific side of the forestry question.

Following the Conference, Lord Lovat made a brief tour of some of the forest areas of the United States, conferring with Calvin Coolidge, President of the United States, in Washington, where he was the guest of the American Tree Association.

CANADIAN FORESTRY ASSOCIATION

By Robson Black, Manager and Secretary

The Canadian Forestry Association was founded in 1900 at Ottawa, Canada, by a group of public-spirited lumbermen and others interested in forest conservation. It is devoted wholly to arousing public interest and promoting legislative action in forest protection and the advancement of sylvicultural practice. The Association has been successful in stimulating an intelligent public sentiment resulting, year by year, in a steady advancement toward a sane forestry régime.

Accepting forest fire prevention as the predominant necessity, the Association's educational program has largely been concentrated upon overcoming public indifference and ignorance. This task of education, in which many Government and private agencies are now giving valued assistance, has not been an easy one to accomplish. For long years financial support of the Association's campaigns proved sluggish, but as public interest in the subject of forestry deepened and economic changes placed new pressure upon the forest possessions, the practical patriotism of the Association's propaganda rapidly widened the circle of supporters until at the present time the revenues total about $80,000 a year with an additional $15,000 received in the form of donated materials and services.

The Association's program makes use of a Forest Exhibits Car, which has been called "A Travelling School in Forest Protection," attracting more than 250,000 people in the smaller communities annually and about 65,000 additional at the evening lectures on forest fire prevention; the Tree Planting Car, confined to the Prairie Provinces, devoted wholly to the stimulating of tree planting in the open agricultural sections, carries practical help and inspiration to about 400 public gatherings annually and to thousands of individual farmers; the Publicity Bureau, in league with 500 Canadian editors; travelling lecturers, with motion picture equipment, visiting the forested communities where fires frequently get their start; popular lectures to business mens' clubs; coöperative educational work through thousands of schools and churches; a Speakers' Bureau, with 6000 members, two thirds of them school teachers, utilizing Association manuscripts in their classrooms month by month; use of essay competitions, with

cash prizes; and many other enterprises to develop juvenile and adult interest in forest conservation and tree planting. *The Illustrated Canadian Forest and Outdoors* acts as the Association's official magazine and has proved invaluable in holding and expanding the membership, which now stands at 15,500.

The 1924 Officers and Directors of the Canadian Forestry Association are:

Patron—His Excellency the Governor-General.
Honorary President—Rt. Hon. W. L. MacKenzie King.
Honorary Vice-President—Hon. Charles Stewart.
President—Percy B. Wilson.
Vice-President—W. E. Golding.
Manager and Secretary—Robson Black.
Publication Manager—George A. Mackie.
Assistant Secretary—G. Gerald Blyth.
Treasurer—Miss M. Robinson.

CANADIAN SOCIETY OF FOREST ENGINEERS

By J. R. Dickson, Secretary

The Canadian Society of Forest Engineers was organized at a small meeting of professional foresters in Montreal on March 12, 1908, with the late Dr. B. E. Fernow as presiding officer. It was dedicated "to advance the members in the theory and practice of forestry by the discussion of technical and professional topics; to promote better mutual acquaintance among Canadian foresters and to cultivate an *esprit de corps* among the members of the profession: to take such steps as may from time to time appear advisable for the purpose of promoting in Canada the interests of the forestry profession as a whole."

The Society now has a membership of 186, three of whom are honorary, 95 active, 83 associate and six non-resident. Its officers are President, Vice-President, Secretary and Treasurer and three members of a district executive committee from each of four districts representing Quebec and the Maritime Provinces, Ontario, the Prairie Provinces and British Columbia. By arrangement with the Society of American Foresters it participates in the technical Forestry publication, *The Journal of Forestry.*

The annual meetings of the Society are held on the third Wednesday in January in the City of Ottawa. At the 1924 annual meeting,

sylviculture and fire prevention were the leading subjects for discussion as two of the most pressing forestry problems. At that meeting the following officers were chosen to serve three years: President, Dr. C. D. Howe, Toronto, Ontario; Vice-President, Mr. G. H. Prince, Fredericton, New Brunswick; Secretary, Mr. J. R. Dickson, Ottawa, Ontario; Treasurer, Mr. Clyde Leavitt, Ottawa, Ontario. The Secretary's address is the Journal Building, Ottawa.

The constructive and advisory influence exerted by the members of the Canadian Society of Forestry Engineers has covered a wide and varied field in Canada. Whether this influence has been of most importance in fostering forestry education or in the framing and execution of public forest policies or in establishing by research and experiment a scientific basis for perpetuating our enormous pulp and paper industries through the activities of the many members in private employ, one can only surmise. Certainly the society as a whole has done some very important work and none the less so because it is not easily to be measured in any abstract way.

As a body it has been most influential in the work of framing provincial and federal forest policies in Canada, that is, as expressed in plans undertaken to survey, protect, wisely utilize and perpetuate the forest resources of the country.

In more specific ways, such diverse problems as the standardizing of map scales or fire report forms, the adequate remuneration of forest engineers in government employ, or the feasibility of forming an international society of foresters, have been studied and passed upon from time to time by committees of the Society.

In short, the work and influence of the Canadian Society of Forestry Engineers has been of steadily growing import, and this is certain to continue in the future, because in Canada the shrinking forest resources and increasing education of public opinion are alike tending to concentrate attention on the necessity of placing trained foresters in charge of every phase of forest management.

AMERICAN SCENIC AND HISTORIC PRESERVATION SOCIETY

This Society was founded by Andrew H. Green and incorporated by the Legislature of the State of New York in 1895, to acquire by purchase, gift or other means historic objects or memorable or pictur-

esque places in New York or elsewhere in the United States, and to hold and improve them. It is the trustee of numerous funds to further these objects, and has been the recipient of various bequests transmitting to it property falling under the head of its objects.

By reason of its fundamental aims, the Society has interested itself in the conservation and preservation of natural resources and has been active in support of forestry legislation. It is particularly interested in the creation and maintenance of State Parks and State Forests, and participates in various organizations formed to inaugurate and further these movements.

Edward Hagaman Hall is secretary of the Society and its offices are in the Tribune Building at 154 Nassau Street, New York City.

THE SOUTHERN FORESTRY CONGRESS

The first southern Forestry Congress was called by Joseph Hyde Pratt, then State Geologist of North Carolina, to meet in Asheville, North Carolina, July 11 to 15, 1916. Besides the North Carolina Geological and Economic Survey, which sponsored this meeting, the North Carolina Forestry Association, the American Forestry Association and the Society of American Foresters each took an active part in bringing together those who were interested in the advancement of Southern forestry.

This meeting, recognizing the fact that the Southern States have special forestry problems of great importance, and that the solution of these problems can be furthered by discussions, such as have marked this first congress, organized itself into a permanent though somewhat loosely united body to be known as the Southern Forestry Congress, with Joseph Hyde Pratt as its president.

On account of the war the second congress was not called until the fall of 1919. It met in New Orleans in January, 1920. Since then the congress has met annually, in Atlanta, Georgia in 1921; Jackson, Mississippi, in 1922; Montgomery, Alabama, in 1923; and in Savannah, Georgia, in 1924. The following have been presidents of the congress: Henry E. Hardtner, Urania, Louisiana; R. L. Hogue, Jackson, Mississippi; W. D. Tyler, Dante, Virginia; Bonnell H. Stone, Blairsville, Georgia. At the last meeting in 1924, J. S. Holmes, State Forester of North Carolina, was elected president.

It is felt that the Congress has had and will have a large influence in spreading the idea of State forestry organization throughout the South. Both Georgia and Alabama took definite action toward creating State forestry departments after the meetings of the Congress in their capital cities. Several of the southern states not now organized are considering such action, and one of the main activities of the Congress will be to further this development. The next meeting will be held in Little Rock, Arkansas, in January, 1925.

Besides Mr. Holmes as president, the Congress has the following officers: C. B. Harman, secretary of the Southern Sash, Door and Millwork Association, Secretary; Joseph Hyde Pratt, chairman of the executive committee.

WESTERN FORESTRY AND CONSERVATION ASSOCIATION

By E. T. Allen, Forest Economist

Organized in 1909 to apply the principle of coöperation between forestry officials, timberland owners and the public in protecting and properly utilizing forest resources, the Western Forestry and Conservation Association ranks next to the United States Forest Service as the largest forestry agency in the United States. It acts as a clearing house and service bureau to afford central facilities for all forest protective agencies—private, state and federal—in Montana, Idaho, Washington, Oregon and California.

State and federal forest officers are associate members and serve on the committees of the association. Otherwise there is no individual membership, the association being rather a sort of grand lodge of thirty coöperative protective associations, distributed throughout the states named. These safeguard about 30 million acres of forest land, with a contributing acreage of 20 million acres. Their expenditures run from $1,000,000 to $2,000,000 a year, according to season and hazard.

The association conducts three departments—forest economics, protection and research—each under a trained forester. Its forest economist is responsible for carrying out its broad policy, its position in legislative and like matters, and its contact and coöperation with all agencies throughout the United States. The protection

department serves all Pacific Coast agencies in developing forest fire work, and equipment, publishing manuals and results, pooling orders for equipment, issuing educational publicity material and furthering field coöperation between all agencies. The research department has been recently organized to conduct field studies of all matters connected with forest land policy, such as reforestation possibilities and requirements, land classification, growth and yield of western tree species, cut-over land protection, brush disposal and other questions.

The Western Forestry and Conservation Association has grown out of the pioneer coöperative patrol associations of Idaho and Washington. Through its efforts this movement was extended throughout the coast states, with close coöperation between the various agencies concerned. E. T. Allen, formerly U. S. District Forester for Oregon, Washington and Alaska, has been its manager and forest economist since its organization, and also serves as forestry adviser to the National Association of Lumber Manufacturers. The Protection Department is now under R. H. Chapler and the Research Department under N. G. Jacobson. The officers elected for 1924 are: President, A. W. Laird, Potlatch, Idaho; Vice-Presidents, C. R. Johnson, California, G. B. McLeod, Oregon, E. G. Ames, Washington, W. S. Rosenberry, Idaho, Kenneth Ross, Montana; Secretary-Treasurer, C. S. Chapman.

SAVE THE REDWOODS LEAGUE

By Newton B. Drury, Secretary

The Save the Redwoods League was organized "to preserve the oldest trees in the world," and incorporated in 1920 as a non-profit corporation. Since then it has been largely instrumental in having set aside through designation as parks, or through gifts and purchases, more than 2800 acres of these giant trees in Mendocino and Humboldt counties. Before the organization of the League the finest of the few remaining groves of the Sequoia sempervirens south of Mendocino County had been preserved, but nothing had been done to save the groves where they reached their finest development in northwestern California. The opening up of this region through the construction of the railroads and highways was bringing about their rapid destruction.

The League has a fivefold object: (1) To rescue from destruction, for the enjoyment of this generation and those to come, representative areas of our primeval forests; (2) To establish through federal aid a National Redwood Park, and through State aid a State Redwood Park; (3) To purchase Redwood groves by private subscription, and to establish memorial groves for individuals and organizations; (4) To obtain the protection of timber along state highways in California and, when feasible, to secure State and county bond issues for Redwood protection; (5) To support the reforestation and conservation of our forest areas.

Of the more than 6000 acres of Redwoods preserved, 2500 acres are in the Big Basin, Santa Cruz County; 2827 acres are a part of the new Humboldt State Redwood Park; and the remainder are in groves preserved by the counties or, in the case of the Muir Woods, by the nation.

Among the recent additions to the total area of Redwoods preserved is the Humboldt Pioneer Memorial Redwood Grove, nine miles north of Orick on the State highway. This grove of 160 acres was given to the State by Mrs. Zipporah Russ, through the efforts of the League, and was dedicated to public use last summer (1923). The supervisors of San Mateo County last year appropriated $70,000 to purchase 310 acres of Redwoods for a county park. Most recently the Pacific Lumber Company has given to the State a magnificent grove of 289 acres at Dyerville in the State Redwood Park; the Redwoods League has purchased, through a gift of $25,000 from a resident of Massachusetts, 113 acres in the Park; and the Humboldt County Board of Supervisors have voted to acquire 80 acres known as the South Dyerville Flat, adjoining the gift of the lumber company. These three groves will complete the first unit of the Humboldt State Redwood Park, which now extends in a continuous strip of twelve miles along the south fork of the Eel River from Miranda to Dyerville.

Funds have been made available to a total of $105,000 for the purchase of Redwood areas. The League supported the Rosenshine Bill, making it possible under certain limitations to use the right of eminent domain in acquiring Redwood and other timberlands for park purposes and calling for a state-wide survey of areas suitable for park uses. The League carries on an active publicity in support of

both Redwood preservation and constructive policies of forestry, forest protection and reforestation.

The officers of the League are John C. Merriam, president; Joseph D. Grant, vice-president; Robert G. Sproul, treasurer; Newton B. Drury, secretary. The membership is 5000, ranging from founder memberships to junior memberships. The address is Library Building, University of California, Berkeley, California.

THE ASSOCIATION FOR THE PROTECTION OF THE ADIRONDACKS

This Association was organized in 1901 to advocate protection of the forest resources of New York, especially in the Adirondack region, and to support constructive activities in general for forest preservation and rehabilitation. Since its creation the Association has been consistently active in advocating forestry and conservation legislation and in opposing attempted encroachments to the detriment of the natural resources of the State.

The officers of the Association are: John G. Agar, president; Samuel H. Ordway, Abraham G. Mills, Robert W. deForest, E.R.A. Seligman and Henry S. Harper, vice-presidents; George D. Pratt, treasurer; Edward H. Hall, assistant treasurer and secretary. The Association has its offices in the Old Tribune Building, 154 Nassau Street, New York City.

CONNECTICUT FORESTRY ASSOCIATION

By Philip L. Buttrick, Secretary

Organized in 1895 and dedicated to the stimulation of public sentiment in support of the protection and upbuilding of the forest resources of the State and Nation, the Connecticut Forestry Association now has an active membership of 950. In the past it has successfully supported the work of the State Government in forestry, has coöperated with the various governmental and private agencies fostering the work and has carried on an active campaign of public education.

It operates a free lecture bureau service for the placing of forestry speakers before audiences of all kinds, distributes forestry moving picture films, library exhibit material, and gives out forestry news to the press.

The Association is now supporting a campaign for the establishment of 200,000 acres of state-owned forests in Connecticut, for the creation of town forests, for increased fire protection and for tax reform with respect to forest lands. Coöperation between various public agricultural and forestry agencies in working out a program for assisting farmers in handling their woodlots is being fostered by the Association. Increased instruction in forestry at the Connecticut Agricultural College, more State parks, better care of highway shade trees and publicly owned trails for hikers through woodland areas are also advocated.

At its 1924 annual meeting the Association announced the raising of more than $5000 for the purchase of a forest to be given to the State. This fund is known as the People's Forest Fund and is intended to meet the needs of public-spirited persons who wish concrete means of showing their interest in forestry.

The officers of the Connecticut Forestry Association for the year 1924 are Alain C. White of Litchfield, president; Henry S. Graves, provost of Yale University, vice-president; Col. T. S. Woolsey, Jr., of New Haven, treasurer; Philip L. Buttrick of New Haven, secretary. The Association offices are at Sage Hall, 205 Prospect Street, New Haven, Connecticut.

FLORIDA FORESTRY ASSOCIATION

Reflecting the growing public sentiment in Florida for a State forest policy and effective forest laws, the Florida Forestry Association was organized in March, 1923. The principal effort of the Association is to educate the public in the need for protection of the forests and to secure legislation. One of the first opportunities of the Association to be active was to present Florida's case before the United States Senate Reforestation Committee. It also took part in the Southern Forestry Congress.

Members of the Association are speaking before legislative committees, women's clubs and in public schools. The movement has the opposition of the cattle interests, whose policy of burning over land for grazing has been expensive to Florida's forest resources. The immediate aim in Florida is to secure the passage of a state forest law, possibly along the lines of the new Alabama law.

The officers of the Florida Association are: W. L. E. Barnett, Mount Dora, president; S. Bryan Jennings, Jacksonville, vice-president; Russell W. Bennett, Jacksonville, secretary-treasurer; and A. A. Coult of Jacksonville and R. H. Paul of Watertown, members of the executive committee. The office of the secretary is at 117 West Forsyth Street, Jacksonville, Florida.

GEORGIA FORESTRY ASSOCIATION

Enactment of a State law creating a Forestry Department under a trained forester is the central aim of the Georgia Forestry Association. It also participates in the Southern Forestry Congress in the work of stimulating sentiment throughout the South in support of forest protection, conservation and recreation. The officers of the Association are: Bonnell H. Stone, Blairsville, president; A. V. Wood, Brunswick, Mrs. W. W. Stark, Commerce, James W. Morton, Athens, Mrs. A. E. Thornton, Atlanta, vice-presidents; C. B. Harman, Atlanta, treasurer; H. G. Spahr, Atlanta, secretary.

ILLINOIS FORESTRY ASSOCIATION

The Illinois Forestry Association was organized in April, 1922, as an outgrowth of the work of the Central States Forestry League in mobilizing forestry sentiment in the Central States. The Association has been generally active in arousing sentiment throughout Illinois and has succeeded in bringing together allied interests in support of the movement. It supported the passage of a bill at the 1923 session of the State Legislature providing authority for the Department of Agriculture to acquire and otherwise set aside as State Forests lands chiefly valuable for the production of timber. This measure also provides authority for the creation of nurseries and the setting aside of game and fish sanctuaries in these areas.

The Association is supporting a bill for the establishment of a Forestry Division at the Agricultural Experiment Station of the University of Illinois to carry on investigations for the improvement of the forest situation of the State. The principal officers of the Illinois Forestry Association are: Dr. Henry C. Cowles, Professor of Botany, University of Illinois, President; Bolling Arthur Johnson,

Editor, *Lumber World Review,* First Vice-President; Professor J. C. Blair, Professor of Horticulture, University of Illinois, Second Vice-President; Frederick Klapproth, Chicago, Treasurer; Edwin F. Dodge, 69 W. Jackson Boulevard, Chicago, Secretary.

IOWA CONSERVATION ASSOCIATION

Having as its object the stimulation of conservation sentiment throughout Iowa, the Iowa Conservation Association is the successor of two similar organizations, the Iowa Park and Forestry Association and the Iowa Forestry and Conservation Association. The Association is particularly interested in the conservation of wild life, the development of State Parks, and the preservation of the forests, lakes and streams. With a membership of 800, it carries on educational work to further these aims. There are no paid officers in the association. Its present officers, elected at the 1924 annual meeting, are: Thomas Huston MacBride, honorary president; Charles R. Keyes, Mount Vernon, president; Arthur Goshorn, vice-president; G. B. MacDonald, Ames, secretary; Henry S. Conrad, Grinnel, treasurer.

MARYLAND FORESTRY ASSOCIATION

Having public service for forestry its prerequisite for membership, the Maryland Forestry Association was organized in 1917 to bring together in a working organization those interested in the various branches of forestry and tree planting. Eligibility for membership is obtained by having performed at least one of fourteen activities, and whether he is a member, senior member or life member depends upon the extent of this service.

Members may qualify for having planted or seeded not less than one quarter of an acre of land to forest trees; for having reinforced planting or seeding of five acres of forest land; for having practised forestry on not less than five acres; for having constructed fire lanes, contributed time or material to support organized forest protection, rendered voluntary service in fighting fire or eradicated tree disease or suppressed insect attack. A member may also qualify for having planted shade trees along a public highway or in public grounds; contributed time or money to their care; aided the laws protecting forest or shade trees; contributed to improvement of State forests; published

material furthering forestry or performed other service of public nature in support of forestry.

The Association, now composed of 320 members, 90 senior members and 90 life members, has effectively supported movements for state forestry in Maryland.

MASSACHUSETTS FORESTRY ASSOCIATION

By Harris A. Reynolds, Secretary

Organized in 1898 in response to a growing public sentiment in support of constructive forestry, the Massachusetts Forestry Association has long been in the forefront of state forestry association activities and has effectively supported many forestry activities of the Federal Government. From a group of 23 men and women meeting in a Boston business office, it has grown to a membership of about 3000.

Seeking to create a wider public interest in forestry through interesting the people in the protection of their highway shade trees, the Association made its first active work support of codification and amendment of the State's shade tree and forest fire laws. It defended the work of the State in fighting the gypsy moth and carried on a publicity to increase the efficacy of the tree warden work of the communities of the Commonwealth.

The Association dedicated itself to a threefold program, seeking to create a better system of preventing forest fires, to secure a more equitable forest taxation law and to bring about State coöperation in the reclamation of waste land for forest growth. To accomplish these ends a State Forestry Department was needed, and the Association secured the enactment in 1904 of the law creating such a department.

During the succeeding years the Association brought about effective public action when the State gypsy moth work lapsed; supported the Weeks Law for the acquisition of Eastern National Forests; secured a forest taxation law that has since been improved; was instrumental in having the State embark on an active reforestation and State Forest program by which 100,000 acres are to be bought and reforested in 15 years with an appropriation of $3,000,000. During the war the Association coöperated in recruiting forest regiments and in wartime wood fuel work.

One of the most recent activities of the Association has been the

fostering of municipal and town forests. This work has been furthered by an offer on the part of the Association to plant 5000 trees at its own expense for any town setting up a town forest of 100 or more acres. More than 100 towns have taken or are considering action along this line.

Having established the fundamentals of a State forest policy in coöperation with the Commonwealth, the Association is now supporting a program of reforestation and reclamation in the hope that the coming pinch of costly lumber may be in a measure mitigated.

The present officers of the Association are: Harvey N. Shepard, president; Ernest B. Dane, treasurer; Harris A. Reynolds, secretary. The offices of the Massachusetts Forestry Association are at 4 Joy Street, Boston.

MICHIGAN FORESTRY ASSOCIATION

The Michigan Forestry Association was founded at Grand Rapids, Michigan, in 1905 for the purpose of promoting a "rational and practical system of forestry in Michigan, and the reclamation and use of lands public or private, now unproductive, for the ultimate advantage of the State and its citizens."

The present officers of the Association are: President, Filibert Roth, emeritus Professor of Forestry at the University of Michigan; Vice-president, A. K. Chittenden, Professor of Forestry, Michigan Agricultural College; Treasurer, Robert Craig, Jr., Professor of Forestry at the University of Michigan; Secretary, Russell Watson, Professor of Forestry at the University of Michigan.

The Association from 1905 to 1910 was very active. It corrected the methods of use and disposal of forest lands which reverted to the State for taxes by having them closed to sale and used as State Forests. It put through the State Legislature fundamental forestry laws. From 1913 to 1923 the Association languished.

In 1923, with the awakening of a new struggle in forestry in the State to have forestry affairs directed by trained, experienced foresters—having the interests of forestry at heart—instead of by politicians with little or no understanding of the problems, the Association again became active. It has supplied much forestry material to the newspapers of the State, and has furnished the high schools with a brochure of Forest Conservation for use in class work.

MINNESOTA FORESTRY ASSOCIATION

Organized in 1876, the Minnesota Forestry Association is one of the oldest of its kind. It has at present a membership of 450 and is working with and auxiliary to the Minnesota Horticultural Society. In its constitution it dedicates itself to "the encouragement and promotion of forest culture by the collection and diffusion of practical information on the subject, and by the discussion of all questions pertaining thereto; to secure the general observance of Arbor Day throughout the State and to promote the ultimate redemption of the treeless regions of Minnesota."

The Association supports non-political and independent organization of the State's Forestry Department with liberal appropriations; coöperation in forest fire protection; classification of land best suited for forestry; State forests and forest planting by the State; encouragement of planting of windbreaks, shelter breaks and woodlots by private initiative; greater utilization of timber in logging and manufacture and taxation of forest products on the yield tax basis.

In its declaration of principles the Association asserts "that forestry is an industry limited by economic conditions, that farmers in prairie regions and owners of timbered and cut-over lands should be aided and encouraged by investigations, demonstrations and educational work; that the State government should practise scientific forestry upon State forests for the benefit of the public."

The officers of the Minnesota Forestry Association are: D. Lange, president; C. D. Velie, vice-president; Fred H. Bathke, secretary; and Phil H. Hanson, treasurer. The Association publishes monthly from September to April, and bi-monthly from May to August, *The North Woods*. Membership in the Association is one dollar a year or ten dollars for life membership. Its address is the Old State Capitol, St. Paul, Minnesota.

MISSOURI FORESTRY ASSOCIATION

The Missouri Forestry Association was organized in December, 1921, to further forestry in Missouri, "to advance the public understanding of the importance of timber crops in the economic life of local communities and the whole state and nation, so that due provision will be made for insuring, particularly within the State of

Missouri, a proper area of forests so maintained and cared for as to furnish a supply of timber for future needs, and to make available all the other benefits of health, pleasure and profit which forests afford."

Since its formation the Association has directed itself to educational work in the form of increased publicity for forestry. It has sponsored a constitutional amendment for forest tax reform and for the creation of a State Board of Forestry. Both of these measures met defeat on their first presentation but will be urged again upon the Legislature.

The officers of the Association are: Dr. Hermann Von Schrenk, president; J. W. Fristoe and Mrs. Marie Turner Harvey, vice-presidents; W. P. Gruner, treasurer and Frederick Dunlap, secretary. The office of the secretary is at Columbia, Missouri.

SOCIETY FOR PROTECTION OF NEW HAMPSHIRE FORESTS

By Philip W. Ayres, Forester

The Society for Protection of New Hampshire Forests was founded in 1901 by Governor Frank West Rollins of New Hampshire, who was for 15 years its first president. The Society has 2300 members, distributed from New Brunswick to Hawaii, all interested in the preservation of the woods on the hills and mountains of New Hampshire.

The Society first suggested the National Forest in the White Mountains, and took the lead in coöperation with many others, in securing the passage of the Weeks Law for the purchase of national forest land in the White Mountains and Southern Appalachians. Thirteen million dollars have been appropriated by Congress for the purchase of forest land in 10 states under this law, including 440,000 acres in the White Mountains National Forest. This is 46 per cent. of the original plan.

The Society first suggested the acquisition by the State of New Hampshire of Crawford Notch, a tract of 600 acres, including the wildest portions of the Notch, purchased for $100,000. It has acquired 12 forest reservations of its own, including the famous Lost River caverns, six miles west of North Woodstock. These reserva-

tions include 3000 acres. The Society has helped to secure appropriations in the New Hampshire Legislature by which 30 other forest reservations have been acquired by the State, together with an excellent system of forest law for the State.

The present officers of the Society are: Allen Hollis, president; James J. Storrow, treasurer; John G. Winant, secretary; Philip W. Ayres, forester. The members of the executive committee are: Robert P. Bass, Allen Chamberlain, George E. Clement, George T. Cruft, John R. McLane, Charles H. Porter, Rolland H. Spaulding, William P. Wharton and Elbert Wheeler. The office of the Society is at 4 Joy Street, Boston.

NEW YORK STATE FORESTRY ASSOCIATION

By J. R. Simmons, Secretary-Forester

The New York State Forestry Association of today was organized in 1913. It is, however, a lineal descendant of the first state forestry association established at Utica, New York, in 1885, with Theodore Roosevelt as presiding officer of the organization meeting. The present officers are:

Hon. Henry M. Sage, president; Col. Robert M. Thompson, president emeritus; J. R. Simmons, Secretary-Forester. The executive committee, composed of representatives of specific groups interested in forestry, is: Franklin F. Moon, dean, New York State College of Forestry; Herman S. Rosenbaum, New York; Barrington Moore, New York Bird and Tree Club and American Ecological Society; George N. Ostrander, Empire State Forest Products Association; Professor R. S. Hosmer, New York State College of Agriculture at Cornell; Clifford Pettis, State Forester. The membership is 1600.

The Association has supported the building of trails for fire protection in the Adirondacks; sponsored taxation laws to encourage private enterprise; campaigned for public education on forestry; aided legislation for fire prevention and acquisition of State and National forests; advocated reforestation of idle city watershed land; maintained a service of advice and information on forestry subjects.

The Association is now working to establish a municipal forest system in New York; offering to undertake such work for any city

possessing watershed or park area; educating public to eventual reforestation of state's idle lands; urging taxation legislation; organizing Boy Scouts for forest planting; enlisting the public in fire protection; coöperating against Gypsy Moth and White Pine Blister Rust and delivering comprehensive service to its members. It publishes *New York Forestry* four times a year and the *Seed Tree* bi-monthly. The address of the Association is 7 Washington Avenue, Albany, New York.

NORTH CAROLINA FORESTRY ASSOCIATION

The North Carolina Forestry Association was organized in 1911 following the calling of a forestry convention to meet at Raleigh, North Carolina, on the initiative of Dr. Joseph Hyde Pratt, then State Geologist. The Association dedicated itself "to promote the protection of the forests of North Carolina from fire and destructive insects, and to promote their perpetuation by wise use and by the reforestation of cut-over and abandoned lands."

At the first meeting Dr. D. H. Hill, then head of the State Agricultural and Mechanical College, was elected president. J. S. Holmes, State Forester of North Carolina, was elected secretary, a position he has held up to 1924. Annual meetings have been held by the Association since its organization.

The Association has kept in close touch with the forestry work of the State Geological and Economic Survey. Its membership is composed of those who have attended the various meetings and those who have contributed funds toward the expenses of the Association. Its activities have included the offering of prizes for essays, the publication and distribution of forestry information and publicity relating to desirable legislation or other State and Federal action. Among the measures which have been urged repeatedly by the Association are State and Federal coöperation in forest fire prevention, a state-wide stock law, a state game commission and stronger support for the Geological and Economic Survey.

Frank W. Cox of Washington, North Carolina was elected president for 1924, and John L. Cobbs, Jr., of Wilmington, North Carolina, was chosen secretary.

OKLAHOMA FORESTRY ASSOCIATION

Although small in membership, the Oklahoma Forestry Association is active in leading the work of securing the passage of adequate forestry legislation in that State. The Association was formed in 1921 to promote forestry in all its aspects, seeking to encourage farm forestry, coöperation between all interested in the forests, tree planting in general conservation and a forest policy for the State. It has succeeded in bringing about sentiment in the State legislature with prospect of success and has been instrumental in having a Department of Forestry established at the Agricultural and Mechanical College at Stillwater. The officers of the Association for the 1924 year are: W. S. Guthrie, Oklahoma City, president; Christian Jensen, Stillwater, secretary; W. A. Etherton, Stillwater, treasurer.

PENNSYLVANIA FORESTRY ASSOCIATION

By F. L. Bitler, Secretary

In the winter of 1885-1886 public-spirited citizens of Philadelphia, impressed by the rapid destruction of the forests of Pennsylvania, and recognizing the need of concerted action towards forest preservation and replanting waste lands, held informal conferences, preliminary to a public meeting, which was held in the hall of the Historical Society on May 26, 1886, when a temporary organization was effected. A permanent association was formed at an adjourned meeting on June 2, and a constitution adopted on June 10, 1886. The organization was incorporated in 1889 and one section of the charter reads:

"The objects of the Association are to secure and maintain a due proportion of forest growth throughout the State; to disseminate information concerning the growth, protection and utilization of forests; to show the great evil resulting from forest destruction, in the decrease and unequal distribution of available water supplies, the impoverishment of soil, the injury to various industries, the change in climate; to secure the enactment by the legislature of such laws, and the enforcement of the same, as shall tend to increase and preserve the forests of the State."

In June 1886, the Association promptly commenced active work by the issue of its organ, *Forest Leaves,* which has since been regu-

larly issued. Circulars were also prepared and issued on various forestry topics. In the year 1892, the late Dr. J. T. Rothrock was secured as Secretary, and he made successful lecturing tours throughout the State to arouse citizens to the importance of the subject. In 1893 the Association prepared a bill advocating the formation of a Forestry Commission to study the subject of forestry in Pennsylvania, and to report in 1895. This bill was passed by the Legislature and the Governor appointed Doctor Rothrock the botanist member.

When this report was presented in 1895, a bill was introduced in the Legislature creating a Bureau of Forestry in the proposed new Department of Agriculture, which was established in the same year. This, in turn, was followed by the creation of a Department of Forestry in the year 1901. In 1897 the Association prepared a bill and presented it to the Legislature, which passed it, authorizing the creation of three forest reservations of not less than 40,000 acres each, one in the drainage basin of the Delaware River, one in the basin of the Susquehanna River and the third in the basin of the Ohio River. Another act authorized the purchase of unseated lands for the purpose of creating State Forest Reservations.

Laws looking to protection from forest fires were sponsored, and in 1915 the State passed an act forming a Bureau of Protection. In 1920 the Association aided effectively in securing an appropriation of $1,000,000 from the State for forest fire protection. This was utilized in forming a comprehensive system of protection.

Realizing that necessarily the larger amount of forested land in the Commonwealth must remain in private hands, the Association sought for a term of years to have passed laws that would lighten the burden of taxation while lands are being reforested. Such legislation was secured in 1913. Numerous other allied activities have been sponsored by the Association.

The Pennsylvania Forestry Association is said to be the oldest of its kind in the country which has maintained its name unchanged. Its office is at 130 South 15th Street, Philadelphia. The officers are: Dr. Henry S. Drinker, president; Robert S. Conklin, J. F. Hendricks, Albert Lewis and Samuel Smedley, vice-presidents; Samuel Marshall, general secretary; F. L. Bitler, recording secretary and treasurer.

PENNSYLVANIA CONSERVATION COUNCIL

With a view to coördinating the activities of all groups interested in conservation, the Pennsylvania State Conservation Council was organized in March 1922. It set as its objects: "To outline a conservation policy for the State; to correlate the efforts of the many state- and county-wide organizations interested in various phases of conservation; and to secure uniformity of action among the several organizations for the support of such measures as are deemed important for the advancement of conservation."

The Council is representative of organizations with a membership of more than 200,000. It is interested in forestry as an essential part of any conservation program. One of its most important committees is a forestry committee.

The officers of the Council are R. L. Watts, Dean and Director of the School of Agriculture, Pennsylvania State College, president; Miss Florence Dibert, R. T. Brown, David Prichard, vice-presidents; Major M. I. McCreight, treasurer; J. A. Ferguson, State College, Pennsylvania, secretary.

TENNESSEE FORESTRY ASSOCIATION

The Tennessee Forestry Association was organized in Nashville, Tennessee, on November 12, 1918. Its efforts have been directed solely toward the creation of a forestry sentiment favorable to the prevention of forest fires and to the support of the forestry work which the State is carrying on in a general way. As an organization it has been effective in putting before the public some essential forestry ideas through which the forestry sentiment has been augmented favorably throughout Tennessee.

The Association has an active membership of eighty. The first president was the late J. M. Overton and that office is now held by Major Rutledge Smith. Rufus S. Maddox, State Forester of Tennessee at Nashville, is secretary of the Association.

TEXAS FORESTRY ASSOCIATION

Encouragement of practical forestry in Texas on the part of both private enterprise and the State Government is the fundamental object of the Texas Forestry Association. It was organized in 1915 with this aim in view and its outstanding activity has been to aid in bringing about the establishment of a Department of Forestry for the State. The officers of the association, which is largely made up of a lay membership in forestry, are: President, Richard F. Burges, El Paso; President emeritus, W. Goodrich Jones, Waco; Vice-presidents, R. A. Gilliam, Dallas; J. Lewis Thompson, Houston; Mrs. Lee Joseph, San Antonio; Watson Walker, Diboll; Secretary-Treasurer, E. O. Siecke, State Forester at College Station, Texas.

WILD LIFE LEAGUE OF WEST VIRGINIA

Dedicated to the conservation of West Virginia's natural resources, the promotion of more forests, more fish and game and a better outdoors, this organization is the forestry association of that state. It was organized at Clarksburg in April, 1922, and has since then been active in support of education and legislation designed to accomplish the League's objects.

Among the aims as set forth in its constitution, the League pledges itself " to prevent the unnecessary or useless injury or destruction of forests by fire, disease or otherwise, and to rebuild the same; and, so far as is consistent with the commercial use thereof, to preserve the native beauty and manifold uses of our forests; to protect the streams from unnecessary pollution and to preserve them in their natural condition for the benefit and enjoyment of the people of the whole State."

The League is affiliated with the National Association of Audubon Societies. It publishes monthly an illustrated magazine under the title of *West Virginia Wild Life*. The officers are Dr. H. H. Haynes, Clarksburg, president; George W. Hill, Sistersville, vice-president; Howard H. Cleaves, Clarksburg, secretary; Glenn Hunter, Charleston, treasurer. The offices of the League are at 727 Goff Building, Clarksburg, West Virginia.

WISCONSIN FORESTRY ASSOCIATION

Permanent organization of the Wisconsin Forestry Association is under way with a view to consolidating public sentiment in the State in support of progressive forestry activity. The officers under the existing organization are: Henry C. Campbell, chairman, assistant editor, Milwaukee *Journal;* J. W. Jones, vice-chairman, lumberman of Rhinelander; George D. Bartlett, treasurer, secretary of the Wisconsin Bankers' Association; C. L. Harrington, secretary, Superintendent of State Forests and Parks. The aim of the association is to "continue and extend forestry in Wisconsin."

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25 BILLION CUBIC FEET
PRESENT ANNUAL DRAIN
ON FORESTS

6 BILLION CUBIC FEET
PRESENT
ANNUAL
GROWTH

AMERICAN NATURE ASSOCIATION

Organized in 1922 and dedicated "to stimulate public interest in every phase of Nature and the Out-of-Doors, and devoted to the practical conservation of the great Natural Resources of America," the American Nature Association is active in support of a constructive forest policy as a part of its conservation program. Through its monthly publication, *Nature Magazine,* the Association not only actively stimulates interest in and affection for wild life, but devotes space to the advocacy of the important fundamentals and phases of the forestry problem.

Among the conservation issues that the Association has successfully brought before the public have been the progressive extermination of the black bear by automobilist-hunters, the depletion of the American antelope, the danger of the extinction of the American Eagle by the paying of bounties for shooting the national bird, the destruction of wild flowers, the need of bird protection, etc., etc. The Association has as a policy the creating of a public appreciation of the wonders of Nature and the out-of-doors, approaching the goal of protecting natural resources in this way.

In the field of forestry, the American Nature Association has stood behind the formation of a national forest policy. It has been represented before various bodies in the advocacy of this policy. It urged the passage of the McNary-Clarke Forestry Bill, filed in Congress as a result of the investigations of the Select Committee of the United States Senate on Reforestation. The Association seeks to interest its members through its magazine in forestry from the popular point of view.

The American Nature Association had a membership of 70,000 on April first. The officers of the Association are Charles Lathrop Pack, president; Percival Sheldon Ridsdale, treasurer; Arthur Newton Pack, secretary; R. W. Westwood, assistant secretary. Mr. Ridsdale is editor of *Nature Magazine.* The offices of the Association are at 1214 16th Street, Washington, D. C.

THE NATIONAL FORESTRY PROGRAM COMMITTEE

Bringing together allied interests and presenting a united front in support of a forward-looking forest policy for the United States, the National Forestry Program Committee has succeeded in achieving a significant coördination of sentiment in connection with the forestry movement. The members of this committee are R. S. Kellogg, chairman; Warren B. Bullock, secretary; E. T. Allen, Western Forestry and Conservation Association; Philip W. Ayres, Society for the Protection of New Hampshire Forests; Elbert H. Baker, American Newspaper Publishers Association; Wilson Compton, National Lumber Manufacturers Association; Hugh P. Baker, American Paper and Pulp Association; Ovid M. Butler, American Forestry Association; John Foley, Association of Wood-Using Industries; William L. Hall, Central States Forestry League; Charles Lathrop Pack, American Tree Association.

The formation of the committee is the result of separate action in the direction of a national policy on the part of certain of the member groups. In November, 1919, the forest conservation committee of the American Pulp and Paper Association, advanced a complete program. This was made more specific in a subsequent report in April, 1920. About the same time the Western Forestry and Conservation Association announced a similar program, which was approved later by the National Lumber Manufacturers' Association.

This development resulted in a call by Mr. Kellogg for a meeting in October, 1920, of representatives of the National Lumber Manufacturers Association, the Western Forestry and Conservation Association, the National Wholesale Lumber Dealers Association, the Association of Wood-using industries, the American Forestry Association, the American Paper and Pulp Association, the American Newspaper Publishers Association and the United States Chamber of Commerce. At this meeting a program was unanimously agreed upon.

This program was embodied in the Snell Bill, introduced in Congress in December, 1920, and the subject of hearings in January, 1921. A permanent committee was organized from the first meeting as a working alliance. The Snell Bill, while it failed of enactment in its entirety, brought out the definite program and accentuated the

value of coöperative effort. The Committee continued to function in support of current constructive forest measures and budget appropriations for forest purchases and fire prevention, at the same time standing for the principles of the original program.

The Committee was represented at hearings held by the Select Committee on Reforestation of the United States Senate. At these hearings it proposed a program immediately providing not less than $1,000,000 for coöperation with the states in fire prevention; $5,000,000 for the purchase of forest land upon the watershed of navigable streams; $1,000,000 for forest research and investigation, including studies in forest taxation; $100,000 increasing to $1,000,000 for coöperation in forest planting; and authorization of additional setting aside of protective forest land. As an ultimate program, the Committee advocated taking stock of forest regions; provision for extensive research; large scale forest planting; better taxation; upbuilding of publicly administered forests to 40 per cent. of the ultimate forest area of the United States.

Some of these proposals were embodied in the McNary-Clarke Bill, which was based on the investigations of the Senate Committee. This measure the Program Committee supported actively before Congress, participating at committee hearings on the measure.

The National Forestry Program Committee has no funds whatever, relying entirely upon the donation of time by the representatives of the member organizations. For this reason, it is believed, it has been largely successful. It has had its nominal headquarters in the office of Mr. Kellogg, 342 Madison Avenue, New York City.

U. S. CHAMBER OF COMMERCE FORESTRY VOTE

On October 3, 1923 the Chamber of Commerce of the United States submitted to its membership a forestry referendum based upon the report of the Chamber's Committee on a National Forestry Policy. This committee had gone extensively into the various phases of the forest problem, holding hearings in various parts of the country. Together with its recommendations for legislation and on matters of policy, the committee declared that the forestry question was of such importance and complexity that it would be advisable for the

Chamber to have a standing committee to continue study and observation of the subject.

The recommendations of the Committee were sent to the member organizations in the form of eight definite proposals. These proposals were submitted with arguments on both sides. With one exception the vote showed an endorsement of the proposals, the exception being Proposition V, on which a favorable vote was cast, but not the two-thirds vote necessary to endorse a proposition.

The recommendations and the vote of the member groups, as announced on January 28, 1924, were as follows:

I. The committee recommends that the federal government should, for protection of headwaters of navigable streams and to the extent permitted by existing law, acquire, reseed and replant waste lands on which reproduction of forest growth cannot be obtained by natural means, with discretion in the Secretary of Agriculture to prefer lands in states which provide at least an equal amount of funds for acquisition of such lands. VOTE: 1934 in favor; 203 opposed.

II. The committee recommends that states and municipalities should acquire, reseed and replant the remainder of such waste lands. VOTE: 1925 half in favor; 207 half opposed.

III. The committee recommends that Congress should enact new legislation with reference to other classes of timberland, to make provision for coöperation of federal government, state governments, and timber owners in protection and reproduction of timber. VOTE: 1771 in favor; 358 opposed.

IV. The committee recommends that such new federal legislation should condition use of federal funds upon the state:

Having a forestry or conservation commission.

Formulating a code of forest management acceptable to the federal Department of Agriculture and aimed to secure continuous forest production, observance of the code to be obtained through voluntary agreements entered into between the proper public authorities and the land or timber owners of considerable areas within the state.

Maintaining adequate protection of timberlands from fire, with funds coming from state and private sources at least equal to federal funds used for this purpose.

Basing taxation of growing timber upon the principle of the yield tax, with reasonable uniformity among the states in such taxation.

VOTE: 1615 in favor; 517 opposed.

V. The committee recommends that Congress should create a national forest council to have functions of advice to administrative officials and a membership of nine, one to be the federal forester and others to represent views of public, timber men and foresters, members of the council to serve without remuneration. VOTE: 1385 half in favor; 723 half opposed.

VI. The committee recommends that Congress should provide for a national survey and inventory of forest resources. VOTE: 1795 half in favor; 318 half opposed.

VII. The committee recommends that Congress should increase the federal appropriations available for protection of timber lands against fire. VOTE: 2026 half in favor; 108 half opposed.

VIII. The committee recommends that Congress should provide for enlargement of the federal research and experiment in forest products. VOTE: 1949 half in favor; 172 half opposed.

On the basis of this referendum the forest policy committee of the Chamber presented its case before the select Committee of the United States Senate on Reforestation and coöperated in the investigations by that committee. With the preparation of the McNary-Clarke Bill, as a result of the Senate committee's inquiries, the Chamber of Commerce of the United States announced its support of this measure as a constructive forestry measure.

SELECT COMMITTEE ON REFORESTATION OF THE UNITED STATES SENATE

One of the outstanding activities in the field of forestry during 1923, and one which promises to make itself felt in the future, was the exhaustive investigation of the whole forestry problem made by the Select Committee on Reforestation of the United States Senate, appointed "with a view to establishing a comprehensive national policy for lands chiefly suited for timber production in order to insure a perpetual supply of timber for the use and necessities of citizens of the United States."

The members of the Senate Committee were: Senator Charles L. McNary of Oregon, chairman, Senator George H. Moses of New Hampshire, Senator James Couzens of Michigan, Senator Duncan U. Fletcher of Florida and Senator Pat Harrison of Mississippi. John D. Clarke, Congressman from the Thirty-Fourth New York District and one of the leading advocates of forestry activity in the House of Representatives, participated in many of the hearings at the invitation of the committee. William B. Greeley, Chief of the United States Forest Service, sat on the committee as an ex-officio member.

In making its nation-wide survey, the committee held 24 hearings in 16 states and the District of Columbia. It made field investigations and gathered information in all of the important forest regions of the country. It took voluminous testimony from all interested in

the forests, timber supply and manufacture, whether from a commercial or official point of view. The stenographic record of its hearings contains much information of value bearing upon the problem as a whole and upon all of its important phases.

REPORT OF THE SENATE COMMITTEE

As a result of its exhaustive investigations, the Select Committee on Reforestation of the United States Senate, through its chairman, Senator Charles L. McNary of Oregon, rendered a report to the Senate on January 10, 1924, with recommendations to be embodied in legislation.

The Committee's report forms an excellent summary of the forest situation of the United States by localities, and sheds light upon many of the special compilations of the issue. In summing up the national situation, the committee's report says:

"It is estimated that the continental United States originally contained 822,000,000 acres of forested land. The expansion of settlement and cultivation and the operations of timber-using industries have reduced this vast area to 138,000,000 acres of virgin forest. In addition, about 250,000,000 acres which have been cut over once or more now bear culled or second-growth stumpage, or small trees of no present merchantable value; and 81,000,000 acres of burnt and logged-off lands are practically barren. All told, the country contains approximately 469,000,000 acres, or about one-fourth of its land surface, which may be classed as forest or potential forest land.

"The original forest wealth of the United States probably aggregated not far from 5,200,000,000,000 board feet of merchantable timber. It has now been reduced to roughly 1,600,000,000,000 feet of virgin stumpage and 600,000,000,000 feet of culled and second-growth timber, a total equivalent in quantity but not in quality to 42 per cent. of the pristine resource as far as that can be approximated.

"One of the most serious aspects of the national situation is the unbalanced geographical distribution of the standing timber that still remains. Three-fourths of the forest land, including denuded and second-growth areas, lies east of the Great Plains; but the process of timber depletion has gone so far in this portion of the Union that it now contains but 25 per cent. of the virgin stumpage yet uncut and but 40 per cent. of all the wood of merchantable size.

"An important part of the surface of 39 states is forest or forest-growing land. From 40 to 60 per cent. of the area of many eastern states with a dense population and highly-developed industries, like Michigan, New York and Massachusetts, is land of this character. Yet but very few of the eastern states contain merchantable timber in quantities corresponding to their areas of forest land. Seventy-five per cent. of our remaining virgin growth and 60 per cent. of all the usable wood in the country are concentrated on one-fourth of the acreage of timber-producing land, in the states comprising the Rocky Mountain region and the Pacific Coast."

The report lays particular stress upon the transportation costs of the dependent eastern states, who import a large percentage of their wood. The terrific drain of fires upon the forest resources is emphasized, as well as the loss from insects and diesase. Consideration is given to the necessity of tax revisions to encourage the farming of timberlands to crops of wood instead of waste; emphasis is placed upon the part of public ownership in preparing for the future and the value of widespread and systematic planting is stressed.

THE McNARY-CLARKE FORESTRY BILL

Based upon its investigations and carrying out the recommendations contained in its report of its findings, the Select Committee on Reforestation of the United States Senate presented to Congress a definite bill, seeking to establish the forest policy envisaged by Congress in creating the committee. The bill was presented in the Senate by Senator Charles L. McNary of Oregon and in the House by Congressman John D. Clarke of New York, carrying the general title of the McNary-Clarke Bill, and the specific titles of S.1182—H.R. 4830, and was finally passed June 6, 1924.

Under Section I of the bill the Secretary of Agriculture is authorized to coöperate with appropriate officials of the states and other suitable individuals in recommending systems of fire protection adapted to every forest region. Through this the creation of an efficient forest protection plan is sought.

Section II empowers the Secretary of Agriculture, through the Forest Service, to follow up coöperation in such a plan, expending in any one year not more than the state appropriates, by joining in fire

protection. Thereby extension of national and state coöperation in fire protection is contemplated to the end that ultimately the Federal Government will provide $2,500,000 a year toward this work of protection.

In Section III authorization is given for an appropriation of $2,500,000 a year to carry out this and the two preceding sections. It also authorizes the Secretary of Agriculture to expend such sums under the appropriation as he deems advisable to study the effect of tax laws on forest perpetuation and renewal and to coöperate with the states in devising such laws to encourage timber production.

By Section IV authority is given for appropriation of $100,000 a year to be expended in coöperation with any state in the procurement and distribution of seeds and seedlings for reforesting denuded lands. This section is designed to aid states that have already started this work and cannot supply the present demands and to encourage such activity on the part of other states.

Section V of the bill authorizes another $100,000 to be matched, at least, with state appropriations, for the purposes of advising and assisting farmers and other owners of land in establishing and improving woodlots, shelter-belts and other valuable forest growth. It seeks to fill the need of education about forestry values among farmers in particular.

In Section VI the bill seeks to amend the Weeks Law by authorizing the Secretary to examine and recommend for purchase, subject to approval by the National Forest Reservation Commission, any forested, cut-over or denuded lands within the watersheds of navigable streams whose acquisition is necessary either for regulating the flow of navigable streams or for the production of timber. It seeks to promote the acquisition of denuded lands on the lower portions of the watersheds of navigable streams whose restoration to timber growth is essential but is so difficult or costly that it cannot be performed by private ownership.

Under Section VII the Secretary of Agriculture would be permitted to accept title in behalf of the United States to lands chiefly valuable for timber production. By Section VIII the Secretary would be authorized to determine the location of vacant public lands chiefly valuable for the protection of streams and capable of being easily merged with the National Forests, and incorporate such lands with

the approval of the National Forest Reservation Commission. Section IX contemplates administration of public reservations, military or otherwise, with a view to their forest assets and by the Forest Service in coöperation with whatever Department they may now be administered by.

The bill makes no mention of regulation by prescribing methods, but seeks to encourage forest rehabilitation and to systematize the ownership and recreation of forest areas.

FOREST RESEARCH AND EXPERIMENTATION

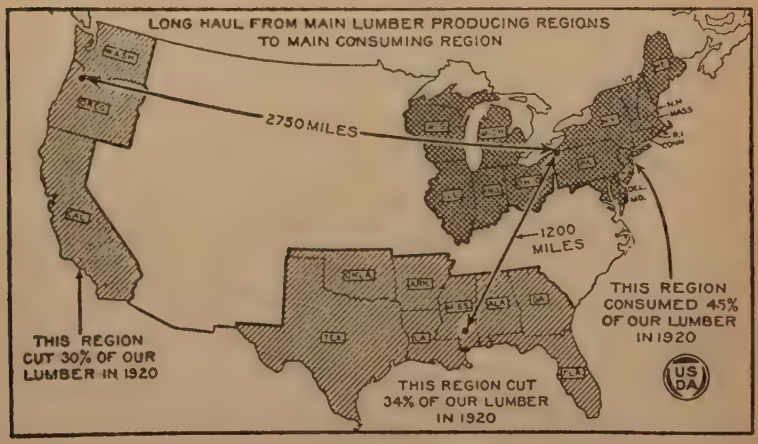
With the rapidly diminishing forest resources of the United States constituting one of the leading economic problems before the nation, every means to the maximum use and maximum protection of the forests and their products are necessary. One of the most important activities to attain these ends is the development of forest experiment and research, adding to the sum total of knowledge about the employment of our present and potential timber lands and timber resources.

The field of experimentation is broad and in large measure technical. The work that is now being done is practically exclusively confined to the several forest experiment stations of the United States Forest Service and the laboratories and experimental departments of forestry schools at more than a score of the colleges and universities.

Only a brief indication of the work done by these experimental agencies can be given here as an indication of their importance and scope. Studies are being made of such questions as the extraction of seeds from cones by kiln drying; the control of the spruce budworm; of the effect of mixing various stands; of root lengths and the effect upon the survival of trees; of the adaptability of trees to localities; of the effect of the pine squirrel on second growth forests; of the adaptability of new trees to the United States. Experiments have been made in methods of measuring moisture on the forest floor, in programs of forest management, in proper systems of cutting and in the yields of second growth forests.

In addition to its forest experiment stations, the Forest Service maintains the Forest Products Laboratory at Madison, Wisconsin, in coöperation with the University of Wisconsin. The laboratory con-

ducts research of first importance into the most effective use of products of the forest. Its technical studies are of wide variety covering the mechanical properties of wood, seasoning of wood, containers, veneers, by-products, substitutes, and generally seeks to find means of using every inch of the tree and to eliminate the large waste of present utilization.


LONG HAUL FROM MAIN LUMBER PRODUCING REGIONS
TO MAIN CONSUMING REGION
2750 MILES
1200 MILES
THIS REGION CUT 30% OF OUR LUMBER IN 1920
THIS REGION CUT 34% OF OUR LUMBER IN 1920
THIS REGION CONSUMED 45% OF OUR LUMBER IN 1920
USDA

THE AMERICAN LUMBER INDUSTRY

By Wilson Compton

Secretary and Manager of the National Lumber Manufacturers Association

In the past the lumber industry has not been prominently identified in the public mind with the forestry movement. Lumbermen and dealers in products of the forest often regarded forest conservationists as sentimentalists. There was a like disposition on the part of conservationists to regard the lumber industry as indifferent to the public problem resulting from the continuing exhaustion of the forest resources.

This situation has in large measure changed. The rapid depletion of the forest resources; the economic stress caused by geographic dislocation of supply and demand; the complication of higher transportation costs and an aroused public sentiment have brought together those agencies interested in the protection and recreation of forest resources. Lumbermen, foresters, and conservationists, while frequently differing on method, at least join together in advocating policies designed to solve the now manifest common problem.

The last fifteen or twenty years have been marked by a genuine interest on the part of the lumber industry in the work of protecting and improving our forest assets. Public coöperation has been sought rather than avoided, and public confidence has been solicited by frankness and facts. Standardization in sizes and grades of lumber has been a noteworthy recent achievement. Improved methods of handling and distribution have been adopted, and the industry has turned more and more attention to the questions of utilization of wood as well as the work of research into the physical and chemical properties of forest products. Elimination of waste is a practical contribution which the industry recognizes it can make to the solution of the forestry problem. And it has definitely taken up consideration of reforestation and sustained forest yield.

The forests and their products, and, therefore, the industry that handles them, are the backbone of our economic order, next to agriculture. In the building up of the United States wood has been essential. It is today demanded by virtually every American industry. The timber of the forests goes to make the American home, about

which and from which our free institutions have grown. Therefore, the industry of cutting and distributing lumber and forest products ranks as one of the most important in the country.

More than one million workers are employed in the lumber and wood using industries. Perhaps five times as many people are directly dependent upon these and many more are indirectly affected by them; and perhaps 10,000,000 are supported by the forests or its products. More than twelve billion dollars are invested in them, and the transportation lines of the United States carry annually some 3,500,000 carloads of timber and wood products at a total revenue to the roads of over $300,000,000—more than from any other single commodity. The United States cuts about one-half of the total annual lumber cut of the world and uses nearly 95 per cent. of it at home. The drain on the forests for all purposes is perhaps three times the annual growth of merchantable timber. At this rate the end of the original stand of timber is in sight. But a general practice of reforestation will give an annual yield of more than present consumption.

The importance of the lumber industry in our economic and social structure, therefore, is apparent. Any discussion of it, however, must be geographically treated, and for the purposes of such a discussion the country is divided roughly into five sections—the Northeastern States, the Southern States, the Central States, the Lakes States, and the Rocky Mountain and Pacific Coast States.

The Northeastern States

The states from Maine to Maryland were the first home of the lumber industry, and up to 1850 Maine was the leading timber-producing State of the Nation. In that year New York took the lead, though its actual production previously had been larger even while Maine was leading. Pennsylvania took first place in 1860. Lands were cleared for agriculture first and then industry, and the forests were depleted until today the original forest area of about 108,000,000 acres in the Northeastern States has been reduced to one-half that acreage of forest land. Twelve million of these acres are denuded and unproductive; four million acres are virgin forest, and the remainder are divided about evenly between merchantable second growth and young forests. These states are importers of 70 per cent. of their wood supplies from Canada, the South, and the West.

The future for what is left of the lumber industry in these states depends upon reforesting idle lands, and the management of all forest areas on a scientific basis of sustained yield. Such methods are already being employed by several wood-using industries which have employed trained foresters to manage their properties. The majority of the governments in these states have embarked on ambitious programs of reforestation. Tax revision to encouiage forest growing by private enterprise has been attempted by two or three of these states, but if the tendency in lumber production, which has slumped from 55 per cent. of the nation's output in 1850 to 6 per cent. in 1920, is again to be upward, the future of the lumber industry in the northeastern section hangs upon reforestation.

The Lake States

From a position of producing about 7 per cent. of the country's lumber in 1850, the Lake States took the lead in 1870 and moved upward to 35 per cent. in 1880. For two decades more they held the van, Wisconsin, Michigan, and Minnesota in that order leading the lumber states as late as 1899. They then declined rapidly to a parity with the northeastern section today. The virgin forest exceeding 100,000,000 acres in the Lake States and embracing rich stands of white pine, has dropped to a virgin stand of about 10,000,000 acres, with some 19,000,000 barren acres and perhaps 26,000,000 acres of second growth and youthful forest.

Tax revision and fire protection are the major problems of the lumber industry in these states if reforestation is to be made to pay. There are many wood-using industries, including the paper and furniture manufacture, in this section. The Lake States pay a freight bill each year on lumber and wood from the South and West amounting to approximately $30,000,000.

The Southern States

Between 1850 and 1860 the states from Virginia to Texas rose to a position of producing about 18 per cent. of the country's lumber output. They fell off for a decade but in 1870 began a gradual rise to a production of 45 per cent. in 1910, their approximate position of today. The decline of the white pine region of the Lake States brought

the rise to prominence of the yellow pine of the Southern States, which today claim the eastern markets. There remain 114,000,000 acres of virgin pine and there is second growth on 119,000,000 acres that have been cut.

The lumber industry of the Southern States has before it the results of the rapid cutting of the Northeastern and Lake States. There is, therefore, a more pronounced tendency to prepare for the future, to assure that through the judicious use of the present standing timber and of the land upon which it stands, and keeping out of fires, or by artificial reforestation, the pineries of the South will be renewed. Forest fire protection is essential and tax revision ranks with it. Large southern companies are now practising reforestation, and there is an active interest on the part of the southern lumber industry in wood utilization and other progressive issues.

The Central States

The Central States and the Southern Central States originally contained 339,000,000 acres of forest, mostly hardwoods. Never contributing more than 22 per cent. of the country's lumber production, the output of this section has gradually fallen off to about 9 per cent. Only about 18,000,000 to 20,000,000 acres of virgin forest remain in a total forest area of 124,000,000 acres, and the bulk of the land cleared has gone into cultivation because of its richness and greater economic value for this use. The lumber industry of this section is highly important for it is the principal source of hardwood. The farm woodlot is the most important factor in the northern part of the region. The southeastern mountainous part is chiefly a commercial lumbering region and is suited to reforestation. The southwestern region is one of extensive commercial timber holdings, but is destined to be largely agricultural when the virgin timber is removed. Fire protection and the education of the farmer to the value of his farm forest are the chief questions in these states.

The Rocky Mountain and Pacific Coast States

Idaho, Montana, Oregon, Washington, and California, with their resources of white pine, western yellow pine, Douglas fir and redwood, are taking over leadership in the lumber production of the

United States. From an output of five per cent. in 1890, they rose to 35 per cent. in 1920, and the curve of production is moving upward. With 120,000,000 acres in the Rocky Mountain and Pacific States, a large percentage of the virgin stand remains.

The western lumber industry has its most important markets in the Lake and Eastern States, a long and expensive freight haul from the source of supply. Protection against the ravages of forest fires is the greatest problem in these states, and timberland owners are coöperating with the Federal and State Governments in keeping down this loss. Natural reforestation takes place admirably if the young growth can be kept safe from fire, and there is an active interest in maintaining the timber supply. Tax revision is actively urged as well. Eight of the largest lumber and timber companies of Washington, Idaho, and California, have just inaugurated a forestry investigation of their lands under the auspices of the Western Forestry and Conservation Association. The majority of the lumber producers of the redwood region of California are now committed to a program of perpetual lumbering. Similar developments are in the making in the Pacific Northwest.

The Future

There is every reason to believe that ere long the forests will be adequately protected from fire, which has been the chief source of their exhaustion in that it has prevented natural reforestation, and that values in forest lands will be rationally taxed and not substantially confiscated as now in many states. These factors, taken with the increasing prices of forest products, will make timber-growing a paying business. Only when it is such can private owners be expected to engage in reforestation. Otherwise reforestation is wholly a problem for the state, and must be largely so in any event, as the experience of Europe shows. Large areas—probably at least 30 or 40 per cent. of forest lands—will be eventually owned and administered by public agencies.

Fire protection, tax revision, and time will solve the forest problem so far as any important national economic issue is involved.

Estimated Quantity of Timber Removed Annually from Forests of the United States.

Product and waste.	Unit of measure.	Quantity in thousands.[1]	Approximate value or cost.[2]	Equivalent in lumber which could have been sawed from same trees.		
				Total (M feet, b. m.).	Soft woods (M feet, b. m.).	Hard woods (M feet, b. m.).
Aggregate	.....	.....	$2,254,015,000	60,193,700	41,057,780	19,135,920
Products, total	.....	.....	2,232,015,000	52,943,700	35,307,780	17,635,920
Lumber, dimension material and sawed ties.	Foot, b. m.	37,700,000	1,138,917,000	37,700,000	28,275,000	9,425,000
Fuel wood	Cord	100,000	475,000,000	5,000,000	1,500,000	3,500,000
Pulpwood	Cord	5,000	79,750,000	2,340,000	2,145,000	195,000
Ties, hewed	Number	70,000	73,500,000	2,100,000	420,000	1,680,000
Cooperage stock:						
Tight staves	Number	350,000	19,250,000	532,000	133,000	399,000
Tight heading	Sets	24,000	12,000,000	178,000	36,200	141,800
Slack staves	Number	1,200,000	18,000,000	362,000	121,600	240,400
Slack heading	Sets	90,000	10,800,000	333,000	166,500	166,500
Hoops	Number	120,000	1,800,000	21,500	.....	21,500
Shingles	Number	9,000,000	37,710,000	900,000	900,000	.....
Mine timbers	Cubic foot	293,000	56,913,000	879,000	439,500	439,500
Fence posts	Number	900,000	225,000,000	825,000	660,000	165,000
Veneer logs	Foot, l. s.	576,000	25,079,000	691,200	103,680	587,520
Poles	Number	4,250	10,625,000	255,000	200,000	55,000
Vehicle stock, woodenware, handles, furniture, etc.	Board foot.	200,000	7,288,000	200,000	2,300	197,700
Distillation wood	Cord	1,400	9,268,000	185,000	.....	185,000
Piling	Number	1,500	6,000,000	180,000	140,000	40,000
Export logs and hewn timbers.	Board foot.	100,000	3,445,000	100,000	50,000	50,000
Tanning extract wood.	Cord	1,000	10,250,000	87,000	.....	87,000
Excelsior wood	Cord	200,000	1,080,000	75,000	15,000	60,000
Lath	Number	2,000,000	9,620,000	.....	.....	.....
Destroyed by fire	Cubic foot.	1,080,000	10,000,000	2,250,000	1,750,000	500,000
Destroyed by insects, disease, and windfall	Cubic foot.	1,300,000	12,000,000	5,000,000	4,000,000	1,000,000

[1] Quantities are based mainly upon averages of production within the period 1912–1921.
[2] Based on prices prevailing in 1919.

DANA ON THE FOREST PROBLEM

The following is an important and significant statement made by Samuel T. Dana, Director of the Northeastern Forest Experiment Station of the United States Forest Service and former Forest Commissioner of Maine, before the Select Committee on Reforestation of the United States Senate at Boston, Massachusetts, September 22, 1923. The statement is reprinted from the records of the Committee, pages 1124 to 1131, and has been checked by Mr. Dana.

MR. DANA. Mr. Chairman, gentlemen of the committee, you have undoubtedly had pretty thoroughly impressed upon you by this time the fact that we have so far been depending for our wood supply almost wholly upon our original forest capital—the slow accumulation of centuries. Within another thirty or forty years the forests will be virtually exhausted. We shall then have to grow our wood like any other crop or go without. But growing a crop of timber on anything like the scale required to meet even our present needs is no easy matter, and is possible only by the general application of methods developed by thoroughgoing research.

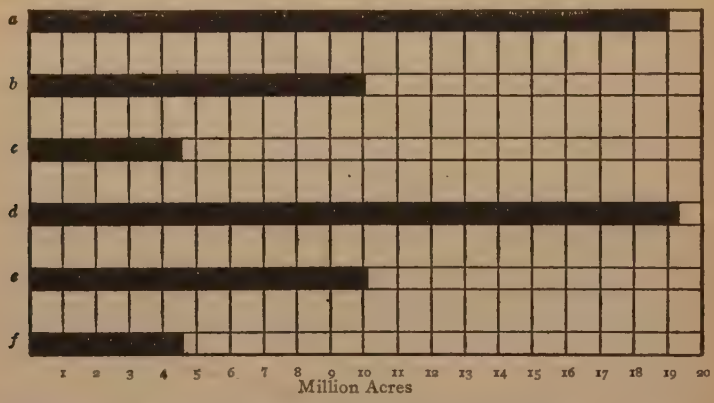
I have brought along a few charts that may help to show graphically what we are up against.

The best available estimates indicate that we are now removing from the forests each year some 25,000,000,000 cubic feet of wood. To produce this amount with our present average annual growth of 12.8 cubic feet per acre would require more than the total land area of the United States. The present growth is, however, low in part because of the large area of denuded land and virgin forests, and the inroads of fire, insects and disease. By cutting these latter to a minimum, and by putting into practice simple and inexpensive measures to start regrowth on cut-over lands, it is estimated that by 1950 the present annual growth could be increased to 21.6 cubic feet. Even with this growth our present demand for forest products could be met only by utilizing more than the total area suitable for the production of crops without irrigation, or considerably more than twice the area which the land experts estimate will be available for forests in 1950 after our agricultural needs have been met. More effective

measures of increasing growth will, very evidently, have to be taken if we are to grow the wood we need on the land available.

SENATOR FLETCHER. Is not the per capita consumption of wood on the decline?

MR. DANA. It has declined in the past few years. The decline in the per capita consumption, however, is offset by the increase in



COMPARISON BETWEEN AREAS AVAILABLE AND REQUIRED TO MEET THE PRESENT DRAIN ON THE FORESTS

a, Total land area of the United States, 1,903,000,000 acres. *b*, Humid area (suitable for production of crops without irrigation), 1,038,000,000 acres. *c*, Present forest area, 469,500,000 acres. *d*, Forest area needed to meet present drain with present growth per acre, 1,927,000,000 acres. *e*, Forest area needed to meet present drain with growth per acre possible by 1950 under crude forestry, 1,147,000,000 acres. *f*, Probable area available for forests in 1950 after agricultural needs have been met, 470,000,000 acres.

population, so that it is doubtful whether any decline in total consumption can be anticipated over a period of years. If anything, it seems more probable that there will be a slight increase in total consumption provided the wood is available.

SENATOR FLETCHER. How do you account for the decline?

MR. DANA. That is due very largely to the increase in prices resulting from economic conditions and from the decreasing timber supply.

I should like to present the same situation that I have just given in other terms that may perhaps drive the point home a little more forcibly.

Look at the same situation from a slightly different angle. Our

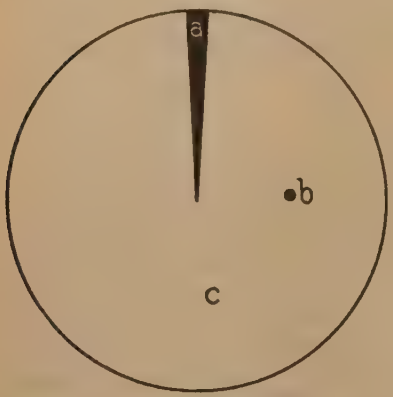
present annual growth of nearly 6,000,000,000 cubic feet is only 24 per cent. of the annual drain. By the practice of crude forestry it is estimated that this growth could ultimately be increased to 56 per cent. of the present drain. The deficit of 44 per cent. can be made up only through the practice of more intensive methods of forest production and the more effective utilization of the material cut. Investigations at the forest products laboratory at Madison, Wisconsin, are paving the way for progress in the latter direction. Their value as a factor in forest conservation is generally recognized, but by themselves they can not be expected to balance the deficit between use and growth. Greatly increased forest production is equally essential as a means to this end.

Let us assume for the sake of simplicity, and as a reasonably conservative forecast of the future, that changes in forest consumption due to increasing population, to reduced losses from fire, insects and disease and to more effective utilization, will approximately offset each other, so that the amount removed from the forest each year will continue at about 25,000,000,000 cubic feet. To produce this amount on our present area of forest land will require an increase in growth from 12.8 to 52.8 cubic feet per acre. Compare this goal with what has been achieved in Europe where forestry is an old story. France and Germany, in spite of the fact that the forests have been handled intensively for centuries, produce, respectively, but 38.4 and 50 cubic feet per acre. Austria and Switzerland each produce 35 and Sweden but 27.4 cubic feet per acre. Belgium and Alsace-Lorraine are the only foreign countries which have a larger average growth per acre than must be obtained by the United States if it is to become self-supporting in its timber requirements.

To increase our present growth by 312 per cent., to a point beyond that so far achieved anywhere in the world outside of two small countries in Europe, is a big job. Crude forestry, universally practised, might ultimately take us a little over half way. To go the rest of the way will require far more intensive measures. Moreover, the task will become increasingly difficult the farther we go. Just as in the production of corn, or wheat, or any other crop, it is much easier to double or even treble a present low yield than to quadruple it.

In order to balance forest growth and forest consumption we

must restore to full production 81,000,000 acres of denuded lands, only 0.04 of 1 per cent of which is now being planted annually, and 250,000,000 acres of second-growth lands, most of which are producing only a fraction of what they might. We must also cut our remaining 138,000,000 acres of virgin forests, so that they will be replaced by fully-stocked stands of desirable species. These things can be done only by practically perfect protection of the forests

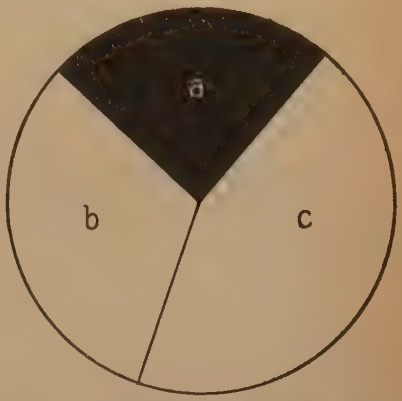


RELATION BETWEEN AREA OF DENUDED FOREST LAND AND PLANTED AREA

c, Area of denuded forest land 81,000,000 acres, 100.00%

a, Present area planted to date 1,148,000 acres, 1.79%

b, Present rate of planting yearly 36,000 acres, 0.04%



Relation between present and possible future growth and present drain on the forests. *a*, Present growth, 24%; *b*, Additional growth ultimately possible under crude forestry, 32%; *c*, Balance to be made up through practice of intensive forestry, 44%.

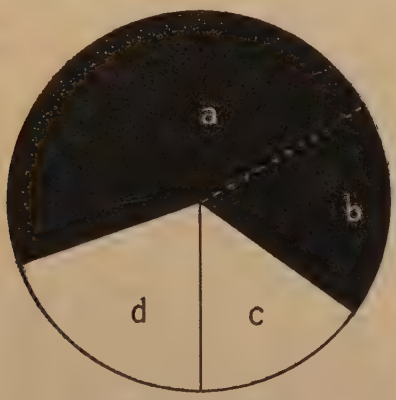
from fire, insects and disease, by extensive planting and by proper sylviculture—in other words, by the application of the most effective methods of forest management.

SENATOR FLETCHER. Will you state how many cubic feet per acre we would have to grow to meet our needs annually?

MR. DANA. Fifty-three, to meet the present drain on the forests. That includes losses by fire at present.

Good intentions will not suffice. Fire protection will not suffice. Equitable taxation will not suffice. Crude forestry will not suffice. If every owner of forest land should start tomorrow to

handle it as conservatively as he knows how, or even if the Chief Forester of the United States should be given a free hand to do exactly as he pleased with the forests of the entire country, we should be better off than we are today, but we should still fall far short of growing enough to meet our present deficit. Colonel Greeley himself would not be able to balance our present growth with our needs for the simple reason that he does not know how.



CLASSIFICATION OF LAND AREA
OF NEW ENGLAND

*a**, Total forest land	25,708,000 acres	65%
c, Improved farm land ...	6,114,601 acres	15%
d, Other land	7,841,839 acres	20%
Total.....	39,664,440 acres	100%

**b*, Of this area 7,020,311 acres or 18% of the total is in the form of farm woodlots.

THE CHAIRMAN (Senator McNary). Do you concede that, Colonel?

COLONEL GREELEY. Absolutely.

MR. DANA. That emphasizes the point I want to make, that we do not yet know enough. The plain fact is that really effective forest management demands much more knowledge than we now possess. This is no excuse for not practising what we do know; it is an argument for finding out more.

Let me illustrate the character of information needed by a few specific examples from New England where the importance of the

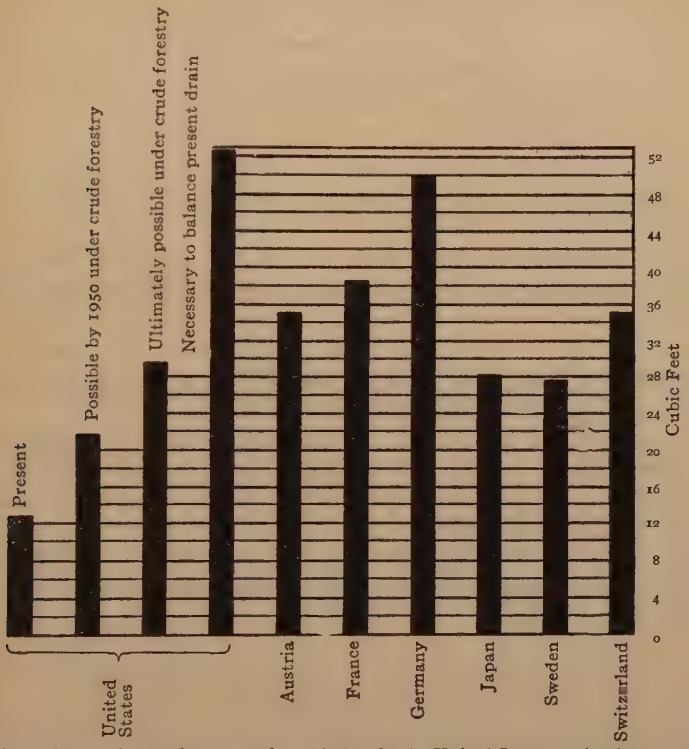
forest problem is indicated by the fact that the forests occupy 65 per cent. of the total land area; and where, in spite of the fact that forest practice is probably more advanced than in any other part of the country, the annual cut in Maine is several times the annual growth, nearly a third of New Hampshire is waste idle land, and Massachusetts has to import four-fifths of its timber requirements, while Connecticut is said to pay a freight bill to import its lumber which is sufficient to replant each year the entire amount cut over. Those facts indicate that New England, in spite of the progress it has made, is still far from having solved the problem of forest production on an adequate scale.

A pulp and paper company owns 200,000 acres of land in northern Maine, and a part of it has been burned so severely as to be practically waste, part has been cut clean for pulp and part has been lightly culled for lumber. Included in the latter are stands of pine, spruce and balsam fir, stands of mixed spruce fir and hardwoods, and stands of nearly pure hardwoods, mostly yellow birch, beech and hard maple. How shall the company handle each of these classes of land in order to secure a fully stocked new stand of desirable species? If everything merchantable is cut from the pure spruce and fir lands, will these species reproduce satisfactorily, or will raspberry and blackberry bushes, moosewood, soft maple and other undesirable species take possession of the area?

To what extent will the tops and branches left after logging interfere with reproduction and increase the danger from fire and insects? Should they be piled in windrows, or small piles, or lopped and scattered, or burned in whole or in part? When can another cut be expected from the same area, and what will be the yield at that time? What will be the answers to these same questions if the stand is cut to a given diameter limit instead of clean? How can the stands of mixed softwoods and hardwoods be cut so as to maintain or increase the present proportion of spruce and fir? What will be the rate of growth after such cutting? Is it possible to introduce any considerable amount of spruce into the pure hardwood stands by clean cutting and planting, or will the cost of keeping back the hardwood sprouts be prohibitive? Will it pay to reforest artificially the burned-over lands, and, if so, what kind and age of planting material should be used? These are some of the

ordinary, every-day questions that pulp and paper companies in the northeast are up against.

A box company with an annual cut of 4,000,000 board feet owns 2000 acres of land in central New England. This consists in part



Comparison of annual growth per acre in cubic feet in the United States and other countries.

of nearly pure white pine stands of various ages, in part of cut-over lands coming up to a mixture of pine, inferior hardwoods and various shrubs, and in part of cut- and burned-over lands covered with almost pure gray birch. Shall the company cut the white pine stands clean, shall it remove them in two cuttings or shall it leave seed trees? How fast will the new stands grow on sites of different quality? To what extent should the young pine stands be

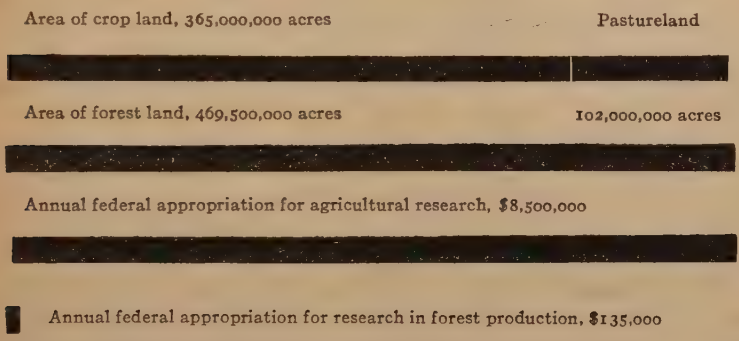
thinned to increase the growth of the remaining trees, and how? How can the mixed stands of pine and inferior hardwoods be made more productive? Will white pine come in naturally under the gray birch on the burned-over lands or should it be planted? In either case, how should the gray birch be treated to give the white pine the best chance to develop? How much additional land must the company buy to grow its own supplies, assuming that it has not enough now? To answer that, of course, requires knowledge as to the rate of growth of the different species.

A farmer in eastern Vermont owns 50 acres of hillside pasture and 200 acres of woodland. The latter consists principally of mixed spruce and hardwoods and is producing about one-quarter of a cord an acre a year. How can he treat the woodlot so as to raise this yield to a cord? How shall he cut to increase the amount of ash and basswood in the new stand? How to increase the spruce? Is the pasture worth more for grazing or for growing timber? If the latter, should it be planted to pine, spruce or hardwoods, or, perhaps, to European or Japanese larch, and what character of planting stock should be used in each case?

These are but samples of an indefinite number of questions to which conclusive replies are not available. To answer them satisfactorily will require years of systematic investigation by trained men. Some of this will have to deal with fundamental problems, such as the relation between tree growth and light, temperature, soil moisture, physical and chemical composition of soil, and other environmental factors. Its ultimate aim is to develop the facts and principles which must be used in producing fully stocked, rapidly growing stands of desirable species throughout the country; in other words, to establish the scientific basis of forestry.

That research in the production of forest crops is as necessary and will pay as well as similar research in the production of agricultural crops can not be doubted. Professor Fisher (Richard T. Fisher, Director of the Harvard Forest) told you that the efficient management of a forest demands skill; skill demands knowledge back of it. That means trained men, men who know forests and how to get the most out of them, just as knowledge must be back of the production of farm crops, no matter what they are. Convincing evidence of the value of the latter is afforded by the fact

that the Federal Government now spends some $8,500,000 a year for the support of agricultural experiment stations and other agricultural research. Our forest area is about the same as the area of crop land and humid pasture land combined, and its management is certainly no less difficult or complex. Of our 495 tree species, 125 of which are of commercial importance, no two are alike in their life histories, characteristics and requirements. For the most part they grow in mixed stands and under widely varying conditions of soil and climate. The cultural difficulties introduced by the present run-


Area of crop land, 365,000,000 acres
Pastureland
Area of forest land, 469,500,000 acres
102,000,000 acres
Annual federal appropriation for agricultural research, $8,500,000
Annual federal appropriation for research in forest production, $135,000

Comparison between present area of crop land, pasture land, and forest land and between federal appropriation for agricultural research and for research in forest production.

down condition of the forests and by the long period required for them to mature, and the economic difficulties created by their location on the poorer and more inaccessible areas, still further complicate the problem of their management.

Yet, so far, taking the country as a whole, forest research has not been developed on the scale that it must be if we are to practise the kind of forestry necessary to meet our timber requirements. In addition to the little being done by forest schools, State departments of forestry and other agencies, the Federal Government now spends $135,000 a year for research in the fields of forest protection and forest production, or 1.6 per cent. of the amount spent for agricultural research.

CONGRESSMAN SNELL I am glad I helped you get a little more last year.

MR. DANA. Yes, Mr. Snell. I appreciate that, particularly as I am in charge of the station you were instrumental in getting started last year. That $135,000 that is now appropriated by the Federal Government is used chiefly for the support of nine regional forest-experiment stations, similar in character and scope and object to the agricultural experiment stations of the country, the difference being simply that they handle forests rather than corn crops. The general methods used and the ultimate object aimed at are practically the same in both cases. Several of these, however, are stations in little more than name, and none of them spends as much as $25,000 a year.

The need for the prompt adoption of a more adequate program of forest research is emphasized not only by the seriousness of the present timber situation but by the long time nature of the forest crop. Results can not be secured overnight with a crop that requires 30 to 100 years to reach maturity. It is therefore necessary to undertake without delay the study both of those problems that are already acute and of those that will soon become so. The results, even under the most favorable conditions, will not be available before there is an urgent need for them.

Scientific research is now recognized as the only sound basis for progress in industry and agriculture. It is no less essential in forestry. Crude methods of forest management are better than none, but they will never enable us to grow enough wood to balance our present consumption. And the intensive methods will be developed to the extent, and only to the extent, to which forest research on an adequate scale is made an integral part of our national forest program.

THE PACK DEMONSTRATION FOREST

Recognizing the vital need of adopting methods of scientific forestry in conserving and rebuilding the diminishing forest resources of the United States, Charles Lathrop Pack of Lakewood, New Jersey, president of the American Tree Association and the American Nature Association, has presented 1000 acres of forest land to the New York State College of Forestry at Syracuse University to be forever dedicated to demonstration and research, and the forest uses of the college.

This area of Adirondack forest land is situated at Barber Point, Cranberry Lake. Adjoining the lake the State of New York already owns 20,000 acres, and on the other side of the Pack forest are 10,000 acres controlled by a large hunting club. On the inlet of the Lake are 1800 acres used as an experimental area by the State Ranger School.

Writing of the Pack forest, Dean Franklin Moon of the New York State College of Forestry points out that it "is located on the south shore of Cranberry Lake and is composed largely of second-growth hardwoods appearing after a fire which swept over this region about fifteen years ago. Among the smaller growth, however, there are islands of original hardwoods—beech, birch and maple—majestic in size and of great beauty. The opportunity for studying the life history, the methods of regeneration, the growth rate and the like, of the species is unrivaled, and as a laboratory for initiating embryo foresters in the use of field methods, it cannot be excelled anywhere in the United States."

The tract now given to the College has been the Sophomore Summer Camp of the budding foresters for eight years. With the surrounding area, particularly the home of the Ranger School with its nine-year old forest nursery, the Pack forest serves as an essential link in the chain. This is especially true in view of the fact that is was impossible to practise real forestry on this area while it was a part of the Adirondack Forest Preserve on which timber cannot be cut under the State Constitution. With its changed status, however, this area, according to Dean Moon, makes "the Cranberry Lake region in a fair way to becoming a great laboratory on which can be worked out some of the most urgent problems that

face the foresters today and give added facts for application in connection with future management."

"The establishment of the Charles Lathrop Pack Demonstration Forest in the very heart of the Adirondacks," Professor Moon continues, "offering an opportunity for generation after generation of husky young foresters to receive field practice, constitutes one of the most hopeful signs in the forestry field at the present time, and is, indeed, a splendid token of future progress in this movement which is of such obvious and pressing importance to the United States."

In making his gift, Mr. Pack does so by giving to the College complete authority over the area, "to conduct and promote investigations, experiments and research in forestry and sylviculture and their several branches, including forestation, reforestation and the growth and development of forests for public, commercial and recreational purposes, the planting, transplanting, cutting and selling of trees, timber and other forest products, the demonstration of the feasibility and advantages of sylviculture, and the maintenance of a summer camp and school for the students of the college in order to familiarize them with field work and the practical aspects of forestry."

In adopting a minute designating the tract to be forever known as The Charles Lathrop Pack Demonstration Forest, the Trustees of Syracuse University declare that the Board, "recognizing the broad and enlightened spirit which has actuated Mr. Pack in making this munificent gift, conveys to him its deep appreciation and sincere thanks for his manifestation of his practical interest in the creation and conservation of forests, for his confidence in the college, and for this additional testimony of his generosity and devotion to the public welfare."

BEREA COLLEGE FOREST

That ownership of a tract of standing timber, managed upon the principles of selective cutting and sustained yield, constitutes a lucrative endowment for an educational institution has been proved by several colleges. Such areas are owned and maintained by practically all of the professional forestry schools, serving as experimental stations and field laboratories. In addition several institutions not giving forestry courses have forest assets of value.

One of the most interesting of these cases is at Berea College, Berea, Kentucky. This institution, organized for an ideal and situated in the foothills of the Cumberland Mountains, possesses a 6000-acre tract known as the Fay Forest Reserve. This area is managed on a commercial basis, supplying lumber, posts, telephone and light poles and railroad ties. Within it are quarries from which sand, gravel, stone and pulverized limestone are marketed. The United States Forest Service through its Appalachian Forest Experiment Station, is coöperating to make the tract an experimental centre, demonstrating to the people of the mountain regions the value of conserving and carefully utilizing their forest resources.

The Fay Forest Reserve is carried on the books of the College as an asset valued at $57,997. Besides returning a varying but substantial income to the institution, it provides employment to many Berea students, who in 1923 earned 62.3 per cent. of their actual school expenses. While Berea does not as yet give organized forestry instruction, it is planned to use the forest tract as a basis of study and research, applying it to the question of the farm woodlot.

THE MONT ALTO FOREST

In 1902 Dr. J. T. Rothrock, then Commissioner of Forestry of Pennsylvania, purchased from the Mont Alto Iron Company an area of 23,000 acres for about $80,000. This area had been devastated by the ax to supply timber and wood for charcoal to be used in the iron smelting furnaces of the vicinity. It had also been swept by costly fires. Mr. George H. Wirt was put in charge of the area with instructions to establish a forest nursery.

In the intervening years the area was managed with a view to the future. Fifteen miles of roads costing about $2000 a mile were built into the forest to aid fire protection. Two steel fire towers and one wooden one and 11 miles of telephone system were installed. Protection increased and fire losses decreased. A tuberculosis sanatorium was established in the area and gradually expanded, restoring health to hundreds. A game and fish preserve was created, providing propagation and refuge. The area became a recreational goal, and the water resources of the growing industrial town of Waynesboro were purified and protected. In 1923 the forest gave employment to 30 men, with a payroll of over $30,000.

The Mont Alto Forest is a young third-growth, with trees averaging 36 years. Yet from 1903 to 1923, the gross cash income has increased from $400 a year to $50,000. It is in its present and future financial possibilities that the forest offers a forestry object lesson.

The purchase price was $80,000 dollars. The excess of expenditure over income for 20 years has been $147,000. The excess for the next 30 years, necessary to bring the forest into maturity should not exceed $210,000. This totals $437,000 not computing interest, which can be set off against the health, recreational, game refuge, water protection and employment benefits of the area. At the end of 50 years, then, the Mont Alto Forest will return annually a net income of $50,000 on an investment of $437,000, represent a valuable asset in standing timber, serve as the research and experimental station of the Pennsylvania State Forest School and continue to perform the functions it has fulfilled during the last two decades.

HARVARD FOREST

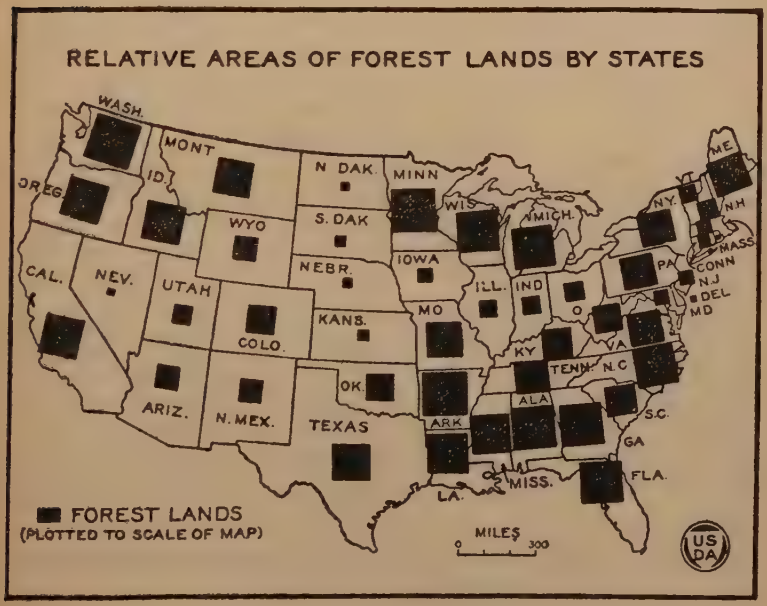
Serving specifically as a field for experimentation and research for forestry students at Bussey Institution of Harvard University and generally as a practical demonstration of the possibilities of sustained forest yield, the Harvard Forest at Petersham, Massachusetts, occupies a unique position in the forestry movement. It is managed by Professor Richard T. Fisher.

The Harvard Forest covers 2000 acres and has a merchantable stand of about 12,000,000 board feet. It has been under systematic management since 1909 for the single purpose of showing methods of maintaining and promoting forest crops and furnishing data on costs of operating organized forests. The original capital investment is carried on the books at $55,000, although liquidation of the area today would return more than twice that figure.

From the financial point of view, the Harvard Forest is cutting and delivering lumber to the market at about $15 a thousand feet. Added to this is the stumpage cost of about $10 a thousand, assuming that bonds have been issued and had to pay interest. An annual contribution is made to the town of Petersham of $700 for road work, making up the loss in taxation to the community by

reason of the area being the property of an educational institution. Above these charges, however, a profit of between two and four dollars net per thousand feet is made on the timber marketed.

Professor Fisher states, however, that the same equipment, overhead and supervision could be used for running an area of ten to fifteen thousand acres, consequently representing no increase in charges but a fivefold, at least, increase in revenue. Through reforestation, weeding out inferior growth and practice of scientific methods, it has been possible to cut more annually than at the start and to count on a considerable annual increase in the amount of maturing timber.



FORESTRY EDUCATION

Facilities for education in the principles and practices of forestry, covering the field from the points of view of economics, sylviculture, entomology and management, have kept pace with awakening public sentiment and organized governmental activity. The result has been the establishment of 22 schools with courses leading to degrees of Bachelor of Science in Forestry, Bachelor of Science in Forestry Engineering, Master of Forestry or other appropriately designed degrees. In addition there are about fifty schools giving short courses in the fundamentals of forestry or in some special phase of the work. This does not include ranger courses established to train men for protective and supervisory work in forest areas.

(The information below has been compiled from data supplied by the officers of the various institutions. No attempt is made to indicate the relative merits of the schools but to show in a general way the activities that have been and are being carried on.)

BATES COLLEGE

Up to 1922 under the Benjamin Clark Jordan Foundation, Bates College, Lewiston, Maine, gave a four-year course leading to the degree of Bachelor of Science in Forestry. The college came into the possession through the Jordan family of several thousand acres of timberland with the provision that they be administered in accord with the best approved methods of scientific forestry. After June, 1921 these lands were put under intensive forestry and the course was discontinued temporarily. This was done in order that every available effort might be applied to the management of the lands. Forestry, therefore, is taught in an elective course, open to the members of the three upper classes, and has an annual enrolment of about 40.

UNIVERSITY OF CALIFORNIA

Division of Forestry

Founded in 1914 at the instigation of a forestry club of undergraduate students and organized as a division of the College of Agriculture, the Division of Forestry of the University of California has

rapidly expanded its educational activities in this field. From a single program of general forestry in its first year, the courses have grown to provide degrees of Bachelor of Science in Forestry for study of four years in forestry or forestry engineering; the same degree for five years' work combining the two subjects, and the degree of Master of Science in Forestry for one year graduate work.

Broadly the courses cover forestry in general, logging engineering, forest products engineering and range management. They seek to train professional foresters; to provide instruction to students, majoring in other fields, in the general principles and ideals of forestry and in certain technical lines; to provide research in forestry from the scientific and practical points of view. Fifty per cent. of the time of the staff is spent in investigative work and the present and contemplated program includes a series of closely correlated projects intended to facilitate and stimulate the practice of forestry on private lands in the redwood region of California.

The average enrolment of students taking the full professional training is 50. The average annual total attendance in all forestry courses, including the students who take only one or two courses and duplication on the part of professional students is between 200 and 250.

In point of equipment, the school occupies Hilgard Hall with 21 rooms devoted to offices, classrooms, a general forest laboratory, a logging demonstration room, two wood technology laboratories, a grazing and forest ecology laboratory, a dark room, herbarium and four research laboratories. A forest nursery is adjacent, and a mile distant is property owned by the university and used for field planting. A large area of cut-over redwood land is used for planting experiment in coöperation with a lumber company. Thirteen weeks are spent by students in the Plumas National Forest.

The faculty of the Division of Forestry are: Walter Mulford, head of the division and Professor of Forest Economics; Donald Bruce, Associate Professor of Forest Engineering; Woodbridge Metcalf, Associate Professor of Sylviculture and Protection; Arthur W. Sampson, Associate Professor of Range Management and Forest Ecology; Emanuel Fritz, Assistant Professor of Forest Products and Lumbering, and Francis X. Schumacher, assistant.

COLORADO AGRICULTURAL COLLEGE

Department of Forestry

Forestry was first taught at Colorado Agricultural College in 1904 in an elementary course given by Professor B. O. Longyear. The following year an experimental arboretum was started on the college farm, and in 1906 and 1907 short ranger courses were given, believed to be the first of their kind in the country. In 1908 the forestry and botany departments were divorced from the horticultural department and in 1909 forestry was offered for the first time in a four-year course leading to the degree of Bachelor of Science in Forestry.

The present Department of Forestry has stood by itself since 1914 and is divided into three divisions: the four-year college course, with an enrolment of 45 students; the three-year preparatory course of the School of Agriculture with an enrolment of 14; the two-year course for vocational men, with an enrolment of 15. During the summer a course of eleven weeks in practical forestry is given at Pingree Park, in the 1600-acre college forest. This tract of timberland, 45 miles west of Fort Collins, the site of the College, was acquired in 1915.

Located in the vicinity of National Forests, the department affords students opportunities to study the management of those areas. Trips are taken to the Fremont Experiment Station at Manitou; to the large Forest Service Nursery in Monument; to the tie-treating plant of the Union Pacific Railway at Laramie, Wyoming. Summer employment on the National Forests is frequently possible for students. Others assist the State Forester, who is also head of the Department, in the annual spring distribution of trees and in work on the State-owned timber lands.

The faculty of the Department devoting their time exclusively to forestry are: W. J. Morrill, Professor of Forestry, State Forester and head of the Department; B. O. Longyear, Associate Professor of Forestry.

COLORADO SCHOOL OF FORESTRY

The Colorado School of Forestry of Colorado College at Colorado Springs was established as a department of the college in 1905. Its aim is to give students who intend to adopt forestry as a profession,

a thorough technical training in the fundamentals and to prepare them for positions in the Federal Forest Service, other lines of forestry or for advanced study.

A four-year undergraduate course is offered, concentrating most of the technical work in the last two years. The first two years are concerned largely with academic work, leaving the last two years free for the large amount of work done away from the college itself. The technical forestry courses in the last two years cover sylviculture, dendrology, forest mensuration, wood structure, forest products and utilization, forest protection, forestation, forest entomology and pathology, forest investigations, forest management and working plans, logging and lumbering, forest history and policy, forest construction engineering and logging plans.

The four-year course carries the degree of Bachelor of Science in Forestry. A two-year graduate course is offered for the degree of Master of Forestry, and a five-year course is provided offering both degrees.

The School owns 6500 acres of forest known as the Manitou Forest in the Rocky Mountains, 27 miles from Colorado Springs, with camp buildings and equipment. Half of the forestry teaching is done on this forest, practical field instruction being thereby combined with the theoretical work. The faculty devoting their entire time to forestry instruction are Gordon Parker, Associate Professor and director of the school, and John V. K. Wagar, instructor.

STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, UNIVERSITY OF GEORGIA

Division of Forestry

The Division of Forestry at the University of Georgia, Athens, Georgia, was organized in 1906 through the establishment of a chair of forestry by gift of George Foster Peabody. It was designed to accomplish four ends; instruction in the economics of forestry; instruction in the practical elements of forestry to aid agricultural students; theoretical and practical work for students planning to make it their profession, and popular education throughout the State.

The curriculum has been developed and now provides a four-year course leading to the degree of Bachelor of Science in Forestry, with

an additional year of graduate work for the degree of Master of Forestry. The course covers the fundamentals of forestry, farm forestry, dendrology, sylviculture, forest protection, mensuration and management, lumbering, utilization, wood technology, sawmill construction and mechanics, forest drawing and surveying. In the junior and senior years particular opportunity is allowed for specialization.

Two two-year courses have been worked out, one to train forest rangers and the other known as the Forest Assistant Course. The former covers certain elementary academic work and the latter is an intensive course devoted entirely to forestry. The enrolment in the Forestry Division for the school year of 1923-24 is 31 students.

During the summer a forestry camp is maintained in Towns County and twelve weeks of the professional course are spent in practical field forestry work in camp.

The members of the faculty of the Division of Forestry are: Thomas D. Burleigh, Associate Professor of Forestry; Lewis R. Smith, Adjunct Professor; and DuPre Barrett, Adjunct Professor. Beginning with July 1 of this year, Mr. Barrett will become extension specialist in forestry and will work with the farmers and county agents throughout the State.

BUSSEY INSTITUTION, HARVARD UNIVERSITY

Graduate work in research and specialized forestry leading to the degree of Master of Forestry is provided in the two-year course under the Bussey Institution of Harvard University, Forest Hills, Boston, Massachusetts. The course is open to graduates of colleges and scientific schools of good standing who present satisfactory qualifications.

In addition to the research facilities offered by Bussey Institution itself, the forestry course makes use of the herbarium and library of the Arnold Arboretum and the Harvard Forest at Petersham, Massachusetts. The course covers research in economic or forest entomology, advanced work in dendrology, sylviculture, forest management and wood technology.

The Arnold Arboretum includes 220 acres devoted to a collection of living trees and other woody plants, shrubs indigenous to cooler temperate climates and a general collection of flora and fauna. Nurser-

ies contain many species under test from the point of view of horticulture or sylviculture.

The Harvard Forest was acquired by gift in 1907 and aggregates about 2000 acres. It is divided into three blocks with a total stand of merchantable timber of about 11,000,000 feet, nine-tenths of which is white pine and the rest chestnut, white ash, red and white oak and other hardwoods. The greater part of the merchantable stand is between 40 and 70 years of age and there is a wide range of growth as well as variety. The forest is used as an experiment station in sylviculture and management, as a proving ground for scientific forestry and as a means to the study of the relation of utilization to management.

The faculty includes Richard T. Fisher, assistant Professor of Forestry and Lumbering and director of the Harvard Forest; Irving W. Bailey, secretary and Associate Professor of Forestry and John G. Jack, Assistant Professor of Dendrology.

UNIVERSITY OF IDAHO

School of Forestry

The School of Forestry at the University of Idaho, Moscow, Idaho, was organized in 1909. Its purpose is twofold: To train young men for the profession of forestry, and to promote forestry in the State by encouraging the right use of forest resources. The School affords thorough training in practical forestry, preparing for government, state and private work. It maintains four- and five-year courses, leading to the degrees of Bachelor of Science in Forestry and Master of Science in Forestry respectively.

The student body for the academic year 1923-1924 numbers 92 majors in forestry besides a number of minors. A considerable number of students from other divisions of the university take advantage of individual courses in forestry. The School offers a correspondence course in "Lumber and Its Uses," which has met with wide favor.

The faculty consists of Francis G. Miller, a graduate of the Yale School of Forestry, Dean and Professor of Forestry; Dr. Henry Schmitz, graduate of Washington University, Professor of Forest Products; Clarence W. Watson, graduate of Yale School of Forestry,

Professor of Sylviculture and Grazing; and Harry I. Nettleton, graduate of Oregon School of Forestry, Professor of Lumbering.

While recognizing the giving of forest instruction as the first obligation of the School, it is realized that the best instruction is possible only when the instructors are given time and opportunity to carry on more or less research. With this fact in mind the forest faculty keeps constantly under way a full program of investigations calculated to assist in solving the forestry problems of the State. The School maintains a forest nursery from which it supplies planting stock at cost. It owns its own demonstration forest which it uses for field laboratories, also large logging and milling operations are near at hand. The largest white pine forest in the world lies almost within view of the university.

IOWA STATE COLLEGE

Department of Forestry

Forestry instruction along the lines of farm forestry was given at the Iowa State College before 1890. In 1903 additional forestry courses were added, and by 1908 there were a sufficient number of courses to prepare students for professional forestry work. In 1912 a full four-year course for the degree of Bachelor of Science in Forestry was offered and a fifth-year course for those desiring to specialize for the Master's degree in forestry has been added.

The staff of the Department of Forestry consists of nine members, headed by Professor G. B. MacDonald, and includes an extension forester and two graduate assistants. There are now enrolled between 90 and 100 technical forestry students. In addition between 400 and 500 agricultural students receive instruction in farm forestry every year. Through the extension service, forestry coöperation has been extended to many counties, particular emphasis being placed on reforestation, windbreak and shelterbelt planting and fence post preservation.

The members of the forestry staff assist in carrying on forestry experimental work in connection with the State experiment station. Investigations are carried on with respect to various phases of utilization, management, marketing and other subjects. One line of experimental work which has been of great importance to the Iowa farmers,

is the project of creosoting fence posts. This project has been under way for about 18 years and is producing very interesting results. A number of reforestation projects are carried on, demonstrating a suitability of various species for reforesting purposes in Iowa.

In the instructional work, the students are being prepared along two general lines; forest production and administration, and utilization and lumbering. Those following the first course generally enter government or state work and those in the second take up corporation activity. The fundamentals of academic work are provided in each course.

LOUISIANA STATE UNIVERSITY

Agricultural and Mechanical College

With increased interest in, and activity in behalf of forestry in Louisiana, the State University is the latest recruit to the ranks of educational institutions giving courses under a Department of Forestry leading to a degree in forestry.

The new course has been finally worked out for the first two years, covering general cultural work and dendrology in the second year. The tentative courses for the last two years will cover soil physics, sylviculture, plant physiology and forest mensuration, forest economics and reclamation, wood technology, logging and lumbering, forest entomology, forest pathology and the chemistry of forest products. The work is supplemented by a six-week summer course in a forest camp in the southern pine belt near Bogalusa. The degree of Bachelor of Science will be granted for the course.

UNIVERSITY OF MAINE

Forestry work under the Department of Forestry, University of Maine at Orono, was first offered in 1903 and in 1904 ten men were registered with forestry work as their major subject. Since then an average of 40 have been registered annually in forestry, 771 students having majored in this course for at least one year and 79 having been graduated with the degree of Bachelor of Science in Forestry. More than 1000 other students have taken forestry courses and the staff has given many lectures in other educational institutions.

The course is a four-year undergraduate course giving special

attention to forest management and engineering as applied to the northeastern section of the United States. There is also a four-year chemical engineering course covering pulp and paper. Of the 76 living graduates of the forestry department, 76 per cent. are now engaged in either public, educational or private forestry work. Several have taken post-graduate work for advanced degree. Through the State Forest Nursery established at Orono in 1913 for use as a field laboratory, more than 1,000,000 forest tree seedlings and transplants have been sold and planted. The demand exceeds the supply.

The present staff consists of the Department head, Professor John M. Briscoe, and two assistants, C. W. L. Chapman, Assistant Professor of Forestry and Dwight B. Demeritt, instructor in forestry. Coöperation is effected with other departments in special courses. A nine-week camp course on the million acre tract of the Great Northern Paper Company is required of all members of the Senior Class during December and January, obtaining practical experience in pulpwood logging.

THE UNIVERSITY OF MICHIGAN

The school of the Department of Forestry of the University of Michigan at Ann Arbor was established in 1903 as a five-year course with a faculty of two and about six students. After the organization of the United States Forest Service, the enrolment reached a peak of 300. In 1916 the policy was changed to grant the degree of Bachelor of Science in Forestry at the end of four years, retaining, as well, the five-year course leading to the degree of Master of Science in Forestry.

The present enrolment in the school is 63. The faculty consists of four permanent men and three student assistants. For physical equipment and building the school is in excellent shape. Two pieces of forest are owned by the University, furnishing facilities for instruction and research. More land is needed, according to the authorities, for research on a commercial scale.

The main activity is in training men for forestry work and in straight forestry research. No effort is made to develop specialists in utilization or in other of the various side lines of forest work. A large number of graduates, however, have gone into the lumber and pulp

industries. Professor L. J. Young is acting chairman of the Department of Forestry. The remainder of the faculty is Robert Craig, Jr., and Russell Watson, assistant professors, and H. M. Lumsden, instructor.

MICHIGAN AGRICULTURAL COLLEGE

Department of Forestry

Courses providing instruction in forestry were first inaugurated at the Michigan Agricultural College in 1902. This work has been brought under the Department of Forestry and is now offered in a four-year undergraduate course leading to the degree of Bachelor of Science, and a one-year graduate course for the degree of Master in Forestry.

The forestry faculty of the Department, devoting its time exclusively to forestry, consists of three members. Allied subjects such as forest entomology, forest botany, economics and other essential studies are given in other departments of the Agricultural College. The present enrolment of students majoring in forestry is 100, and there are two students studying for the Master's degree. In addition to the technical courses in forestry, a course in farm forestry is given to agricultural students and is required of all agricultural freshmen in the College. Last year 170 students were enrolled in this course. In the technical courses special emphasis is laid on utilization and forest management and advantage is taken of the large number of wood-using industries in the vicinity of Lansing to give practical examples of methods of dry-kilning and the study of wood technology.

The college maintains a forest nursery from which it sells trees at practically cost to residents of the State who wish them for forest and windbreak planting. The school maintains a forest experiment station and does extension work in forestry. In addition to the regular courses during the academic year summer school work is given in the north woods, providing practical experience in forest mensuration, lumbering and other practical field work. Bulletins are issued from time to time chronicling the result of experimental work. A tract of 50,000 acres is owned in the northern part of the State, being designated the Agricultural School Forest Reserve, and offering opportunity for study and research.

The members of the forestry faculty are: A. K. Chittenden, Professor of Forestry; J. C. DeCamp, Assistant Professor of Forestry; and P. A. Herbert, Assistant Professor of Forestry. The College is located at Lansing, Michigan.

STATE UNIVERSITY OF MONTANA

School of Forestry

Undergraduate work in forestry providing opportunity for specialization in the various branches of forestry and forest engineering, and leading to the degree of Bachelor of Science, is offered at the University of Montana, School of Forestry, together with graduate work for the degree of Master of Science in the departments of sylviculture and forest management. The School also has a 12-week short course for training forest rangers.

The School of Forestry is situated within easy reach of extensive logging and lumbering operations. Missoula, the site of the University, is also the headquarters of District One of the United States Forest Service. The School is virtually bounded by the Lolo, Bitter Root and Missoula National Forests, and within 100 miles are 17 National Forest areas, three other government timber reserves and a National Park.

The courses given in the forestry curriculum cover general forestry, fire protection, woodcraft, economics of forestry, forest policy, forest administration, sylviculture, management, measurement, scaling and cruising, wood technology, lumbering, logging, forest products, forest appraisals, grazing management, surveying, forest mapping and general academic training. The students have the opportunity to spend at least three months of every year in getting practical experience in some form of woods work, and many of the courses have a large amount of practical field work.

The faculty of the School of forestry are: Professor T. C. Spaulding, acting dean; Assistant Professors Fay Clark and Reuben Prichard; Instructors, Harold H. Lansing and J. H. Ramskill; Assistant, L. W. Dennie. In addition to the regular forestry staff, lectures are given by members of the Federal and State Forest Service.

UNIVERSITY OF MINNESOTA

College of Agriculture, Forestry and Home Economics

Forestry instruction was first introduced at the University of Minnesota, St. Paul, in 1898 through the inclusion of two forestry courses in the agricultural curriculum. In 1905 a forester was added to the staff. Increased interest in the subject became apparent, and in 1910 the work became a college of itself. A four-year undergraduate course for the degree of Bachelor of Science is now given and graduate work for the degree of Master of Science. The enrolment is 116 for the 1924 year.

The first two years of the course combine with forestry instruction general academic courses essential to college training. The courses offered in forestry and its various phases offer opportunity for specialization during the last two years and in the graduate study. The curriculum covers general forestry, dendrology, sylviculture, mensuration, forest valuation, grazing, factory experience, tree crops, groves and windbreaks, logging, sawmill and wood-working machinery, seasoning of wood, lumber distribution, wood structure and identification, seeding and planting, administration, wood preservation, wood pulp and paper, wood technology and physics and utilization.

A summer station or forest laboratory was established at Itasca Park in 1908, and in 1911 the lumber companies of Cloquet donated 2300 acres to the University as a forest experiment station. Both of these have been developed, providing ground for field work and research.

The faculty of the forestry department are: Edward G. Cheyney, Professor of Forestry; John H. Allison, Professor of Forestry; John P. Wentling, Associate Professor of Forestry; Leland L. deFlon, Thorwald S. Hansen and Gilbert H. Wiggin, instructors in Forestry.

THE UNIVERSITY OF NEW HAMPSHIRE

Forestry is a part of the curriculum of the New Hampshire State College of Agriculture and Mechanic Arts in a four-year course providing special training in this profession as well as general training in related agricultural lines. The course leads to the degree of Bachelor of Science and fits the student for graduate work leading to a degree in Forestry.

Durham, the site of the college, is well placed with respect to woodlot forestry. Virtually all types of native second growth are found in the vicinity and the college owns a tract of 60 acres of old growth, mature timber. A nursery has been established. The equipment includes materials for map making and estimates, wood collections and other essentials.

Besides courses in scientific agriculture and academic courses covering journalism, business law and other subjects, the forestry course includes principles of forestry, dendrology, wood technology, sylviculture, forest mensuration, forest management, advanced forestry, forest utilization, farm woodlot problems and forest engineering. Practical forest work is required between the sophomore and junior years. The course covers four years.

The course is in charge of Karl W. Woodward, Professor of Forestry; and Clark L. Stevens, Assistant Professor of Forestry.

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

Department of Forestry

Forestry was originally a part of the curriculum of the New York State College of Agriculture at Cornell University, Ithaca, New York, from 1898 to 1903. It lapsed for seven years and in 1910 was reëstablished by the creation of the Department of Forestry of the College of Agriculture.

The Department has three principal aims: To give instruction in forestry at Cornell University, to conduct research and to advise and assist the owners of forest lands in New York State. The instruction in forestry is designed to meet the needs of several classes of students: (1) Students in general agriculture who wish elementary instruction in the care of woodlots and in forest planting and forest nursery work; (2) prospective teachers, business men, lawyers and others who desire an understanding of the place of forestry in the life of a nation; (3) technical students in other lines who wish one or more technical forestry courses such as wood technology; (4) professional forestry students preparing for forestry as a life work.

The courses offered are designed not only to prepare students for a professional career in general forestry, but also to provide oppor-

tunity for advanced study and research in sylviculture, forest management, forest mensuration, forest entomology, forest pathology, extension work in forestry and in other lines in which specialists will be useful. The preparation provides for four years' undergraduate work leading to the degree of Bachelor of Science, and one year's graduate work for the degree of Master in Forestry.

One hundred and thirty-four students have graduated with the degree of Bachelor of Science and 38 have continued with professional work for the Master's degree. The present registration is 98 professional students, with a large additional registration taking one or more courses. The department occupies two and one-half floors of Fernow Hall, built and equipped by the State in 1914. The department has a tract of about 175 acres of open land that has been used for forest planting. In addition there are a number of smaller tracts of woodland being managed collectively for a sustained yield under a forest working plan. A forest nursery is maintained, and the department is equipped with a forest library of 1400 volumes and has a file of all forestry periodicals.

Provision is made on the faculty for one professor devoting his entire time to research work, and various members of the staff conduct this work. The department endeavors to be of direct help to owners of forest lands in the State, carrying on extension work by means of correspondence, publications, lectures and personal inspection of woodlands or lands to be planted to forests.

The present faculty are: Ralph S. Hosmer, Professor of Forestry; Samuel N. Spring, Professor of Sylviculture; A. B. Recknagel, Professor of Forest Management and Utilization; John Bentley, Jr., Professor of Forest Engineering; G. H. Collingwood, assistant extension Professor of Forestry; C. H. Guise, Assistant Professor of Forest Management; Albert R. Mann is dean.

NEW YORK STATE COLLEGE OF FORESTRY

The New York State College of Forestry at Syracuse University, Syracuse, New York, was created by act of the Legislature in 1911. It was charged with undertaking special research and State-wide investigation to aid in solution of forest problems and with providing an educational institution in forestry.

In fulfilling these requirements the scope of instruction and activity covers a wide field. Lectures and field instruction in the historical and economic aspects of forestry are available to all students at the University. More extended instruction along these lines is given those who desire preparation for forestry teaching in the public schools. Through a four-year course leading to the degree of Bachelor of Science, or a five-year course for the degree of Master of Forestry, professional foresters are trained for state or national service or for work as forest experts in private enterprise. Opportunity for specialization is offered in city forestry, forest recreation, lumbering, paper and pulp-making, forest management, dendrological chemistry, forest entomology, forest pathology, forest zoology and such special work.

The College provides lectures throughout the State for any organization interested in the conservation of natural resources, informs the public through bulletins and gives expert advice to owners of forest lands. Special service is provided producers and consumers of forest products through special market investigations and studies of utilization. A Ranger School is operated on the College Forest at Wanakena, New York, training men as guards, rangers, forest estate managers, tree planting experts and nursery foremen.

Experimental work is carried on at the State Forest Experiment Station. Similar work is given in the Charles Lathrop Pack Demonstration Forest of 1000 acres on the shores of Cranberry Lake, on the 1600 acres of Adirondack land of the Ranger School and on the 1850 acres of cut-over land given the University by the Rich Lumber Company. The forest area given to the University by Mr. Pack is the home of the Sophomore Summer Camp of the College. The University has also acquired two other tracts of cut-over land for practical experimental work. At the State Experiment Station instructional work in forest nursery practice and sylviculture are carried on, and a woodlot of thirty acres is used for demonstration work in marking trees for thinning and for underplanting.

The College is equipped with a laboratory for all phases of forestry work. It maintains a Forest Library containing literature bearing in any way on forestry. A sawmill, pulp and paper plant and dry kiln are a part of the college plant.

The enrolment at the College is about 250 students in the fall and 200 at the second semester.

The faculty are: Franklin Moon, Dean of the College and Professor of Sylviculture; Maulsby Willett Blackman, Professor of Forest Entomology; Nelson Courtlandt Brown, Professor of Forest Utilization; Leigh H. Pennington, Professor of Forest Botany; John Wallace Stephen, Professor of Sylviculture; Charles Christopher Adams, Professor of Forest Zoology, Director Roosevelt Wild Life Forest Experiment Station; Harry P. Brown, Professor of Wood Technology; Laurie D. Cox, Professor of Landscape Engineering; Henry R. Francis, Professor of Forest Recreation; Louis E. Wise, Professor of Forest Chemistry; Reuben Parker Prichard, Professor of Sylviculture; Clarence Earl Libby, Professor of Pulp and Paper Manufacture; James F. Dubuar, Director and Professor of Forestry, Ranger School; Earle S. Pierce, Director of Forest Extension; Gurth A. Whipple, Professor of Forest Extension; Gustav F. Lentz, Professor of Forestry at Ranger School; William C. Kendall, Ichthyologist, Roosevelt Wild Life Forest Experiment Station; Hiram Leroy Henderson, Assistant Professor of Forest Utilization; Charles Cheswell Forsaith, Assistant Professor of Wood Technology; Harold Cahill Belyea, Assistant Professor of Forest Engineering; Alan F. Arnold, Assistant Professor of Landscape Extension; Wilford E. Sanderson, Assistant Professor of Forest Extension, Director of Summer Camp; Alvin Goodnow Whitney, Assistant Director, Roosevelt Wild Life Forest Experiment Station; William S. Knickerbocker, Assistant Professor of English and Registrar; Don M. Benedict, Assistant Professor of Forest Botany; Edwin A. Hartley, Assistant Professor of Forest Entomology.

OREGON STATE AGRICULTURAL COLLEGE

School of Forestry

Instruction in forestry is given at the School of Forestry of the Oregon State Agricultural College to an enrolment of about 125 students. The school is situated in the Willamette Valley, 100 miles south of Portland. It requires for entrance the standard secondary school training demanded by the universities and colleges.

The School is housed in a three-story building containing laboratory space for work in logging engineering, forest mensuration, timber technology, sylviculture and dendrology. It includes a collection of manufactured wood products. Field work is carried on in

the nearby forest area, including 2400 acres of timbered land belonging to the city of Corvallis, at the disposal of the School for experimental work, and 160 acres of logged-off land belonging to the School itself. This latter acreage is being planted to native commercial trees.

Students in logging engineering put in one full day a week during the college year in field work. Students in forest surveying and mapping devote about an equal amount of time to practical field work. Those interested in lumber manufacture have access to some of the largest saw mills and pulp plants in the world, and study of these operations is a requirement of the courses.

The Bachelor's degree in forestry is granted to students in forestry and logging engineering, and a Master's degree is provided for advanced work. The majority of the graduates secure employment in some branch of the lumber industry.

The Faculty of the School are: George W. Peavy, dean; Harry R. Patterson, Professor of Forestry; Thurman J. Starker, Associate Professor of Forestry; Earl G. Mason, Instructor; Percy E. Melis, Assistant.

PENNSYLVANIA STATE COLLEGE

Department of Forestry

While the teaching of professional forestry has been discontinued by the trustees of the Pennsylvania State College, the Department of Forestry is carrying on its work in the training of men for specialized activity in the forestry field. A curriculum in Farm Forestry has been established, preparing men for the increasingly important work of farm forestry county agents, and as extension workers in this line as well as managers of large wooded estates. This course includes certain agricultural courses essential for men dealing with farmers. The present enrolment in this new work is 23, and previous to the dropping of the professional courses there was an enrolment of more than 100 students.

The forestry department also had a curricula in wood utilization and the lumber industry. This is being carried on under the School of Engineering and is being developed from the engineering standpoint. The training in City Forestry has been transferred to the Department

of Landscape Gardening. The work previously performed in providing instruction for students in other schools along forestry lines is being continued. In addition to these activities a two-year course in forestry for mature students with experience in forestry, lumbering and other lines, preparing them for ranger examinations and work in the lumber industry, has been continued. Professor J. A. Ferguson is at the head of the Department of Forestry.

PENNSYLVANIA STATE FOREST SCHOOL

By act of the Pennsylvania State Legislature the name of the State Forest Academy at Mont Alto, Franklin County, Pennsylvania, has been changed to the Pennsylvania State Forest School, and with the discontinuance of the professional course in forestry at the State Agricultural College, the Mont Alto school is the only professional forest school in the State. It was formally established by the Legislature in 1903 although the groundwork was laid previous to that time and a curriculum had been worked out.

The course at the school is four years of 46 weeks each, leading to the degree of Bachelor of Forestry. Tuition is free to Pennsylvanians. The course covers forest mensuration, sylviculture in all its phases, dendrology, forest entomology, pathology, protection, organization and history, wood technology, lumbering, logging and milling, wood utilization, finance and law as applied to forestry, forest appraisal and administration, and a variety of other courses essential to an academic and technical training.

Through the Mont Alto State Forest the school has a forest laboratory of highest order. This tract of 23,000 acres has been under careful management on sustained yield for 17 years and during 1923 returned a gross income of $50,000. It is dotted with plantations, experiment stations, improvement cuttings and is equipped with fire towers, trails, ranger stations and a telephone system. The school forest nursery has an annual output of 3,000,000 trees, used by the State and private owners.

The present enrolment of the school (1924) is 68. Accommodations will be increased this year to admit 80 students and within another year it is planned to extend the capacity of the school to 100. The faculty now numbers seven members but will be increased to 10 under the new arrangement.

The members of the school faculty are: Edwin A. Ziegler, Director and Professor of Forestry; Willard M. Drake, Professor of Forestry; George S. Perry, Professor of Forestry; W. Harold Horning, Assistant Professor of Forestry; Coleman J. Harris, Professor of Biology; Roland W. Brown, Professor of Soils and Chemistry; Louis C. Loetzer, Instructor in Forestry.

UNIVERSITY OF WASHINGTON

College of Forestry

The College of Forestry at the University of Washington at Seattle was established in 1907 and now offers a four-year undergraduate course leading to the degree of Bachelor of Science in Forestry, and graduate work for the degrees of Master of Forestry or Master of Science in Forestry. The present faculty consists of four full-time instructors of professorial rank and one special lecturer from the United States Forest Service. The enrolment is 153.

The curriculum of the College of Forestry is directed to provide a broad general forestry training during the first two years, and an opportunity for specialization during the last two years of undergraduate work. Thorough specialization is offered in particular in forest service and state work, logging engineering, forest products and the lumber business. Special work along other lines is arranged.

For advanced work the equipment of the College offers opportunity for research in dendrology, sylviculture, management, wood technology, timber physics, wood preservation, advanced forest products and lumbering.

Ground has been broken for a new building for the College—the gift of Mrs. Alfred H. Anderson—costing about $250,000. The new building will be used for the instruction work and the present quarters for research and experimentation. On the University campus the school has forty acres of forest land for field work, and there are forest stands within walking distance of the campus. The University owns several large tracts in various parts of the State, using them for research work, and the National Forests and wood-using and lumbering industries near Seattle offer opportunity for field work. Much of the instruction is given in the field and summer work in connection with forest activities is urged by the College.

In addition to the educational work, the College conducts a technical service bureau for industries in the Northwest. Some 250 technical problems are handled every year. Active part has been taken in urging reforestation and tree planting. A quarterly magazine is published by the Forestry Club.

The faculty of the College of Forestry are: Hugo Winkenwerder, dean and Professor of Forestry; Bert P. Kirkland, Professor of Forest Management; Elias Treat Clark, Professor of Logging Engineering; Bror L. Grondal, Assistant Professor of Forest Products; Conrad W. Zimmerman, Lecturer in Timber Physics.

STATE COLLEGE OF WASHINGTON

Department of Forestry

Courses in forestry have been offered at the State College of Washington, Pullman, Washington, since 1891, and are now provided under the Department of Forestry and Range Management. In coöperation with departments and divisions of the College of Agriculture, a four-year curriculum in forestry and range management leading to the degree of Bachelor of Science in Agriculture is offered. There is also a three-year forestry course fitting the student for ranger work and for practical work with logging and lumber companies.

The courses offer study in general forestry, sylviculture, forest mensuration, forest history, economics, protection, wood technology, logging, forest products, management and finance and valuation, dendrology, farm forestry, management of live stock on forest ranges and range management. Opportunity to specialize in such lines as plant pathology, entomology, or the commercial and business phases of lumbering and logging is provided in the fourth year work. The range course is designed to fit the student for work with the grazing branch of the United States Forest Service, for work with individual companies or for occupational live-stock raising under open range conditions.

The work is of college grade and may be applied to a degree in any of the major departments of the College. Associate Professor E. H. Steffen, a graduate of the Iowa State College, is head of the Department of Forestry.

YALE UNIVERSITY

School of Forestry

Established in 1900 through a gift of $150,000 by the family of James W. Pinchot, the School of Forestry at Yale University, New Haven, Connecticut, is the oldest forestry school in point of continuous existence in the United States. It was the intention of its founders to provide an institution for the training of professional foresters and, at the same time, to make it the centre of activity in scientific forestry and to train leaders in the forestry field.

The school is founded as a school of applied science, requiring for admission a baccalaureate degree or at least three years undergraduate work covering certain prescribed studies. The degree of Master of Forestry is conferred on candidates having completed two years of technical studies and having fulfilled certain other prescribed conditions. The degree may be conferred for completion of a two-year professional course covering the entire field of forestry or for specialization in a given branch. In the latter case basic preparation is required.

The courses open to the candidates for degree cover the profession of forestry, surveying, dendrology, soils, sylviculture, forest entomology, forest pathology, forest mensuration, forest management, forest products, lumbering, forest economics, state forest policy, federal forest policy, forest improvements, tropical forestry, principles of accounting and business law, plant ecology, forestry abroad, forest protection, wood preservation.

At New Haven the School of Forestry is housed in Sage Hall, a new building entirely given over to the school. It includes the Forest Club rooms, technology laboratory, lecture rooms, library of 22,000 volumes devoted to forestry, sylvicultural laboratory, drafting room, forest products laboratory, herbarium, wood collection and smaller laboratories.

In the field the School of Forestry has equipment for instruction and research at the summer session camp at Milford, Pennsylvania. The School owns and has under its management 2800 acres in three forest properties. In addition it carries on forestry practice on a number of properties owned by corporations and individuals in various parts of the country. At Keene, New Hampshire, in the best New

England white pine region, the School has more than 1000 acres as a practice and demonstration area. A second forest is owned in the towns of Redding and Weston, Connecticut, covering 1300 acres and containing a hardwood stand with occasional conifers. The third tract is near Mount Holly, Vermont, amounting to 500 acres used for study of upland species. The forests of the New Haven Water Company are used for sylvicultural field work.

The enrolment of the school, including members of the junior and senior classes, special research students and those enrolled for the summer session only, averages between 45 and 50.

The faculty of the Yale Forestry School are: Henry S. Graves, dean, Provost of Yale University and Sterling Professor of Forestry; Gifford Pinchot, non-resident Professor of Forestry; James William Toumey, Morris K. Jesup Professor of Sylviculture; Herman H. Chapman, Harriman Professor of Forest Management; Ralph C. Bryant, Manufacturers' Association Professor of Lumbering; Ralph C. Hawley, Professor of Forestry; Samuel J. Record, Professor of Forest Products; Harry N. Whitford, Assistant Professor of Tropical Forestry; Wesley R. Coe, Professor of Biology; Charles S. Farnham, Associate Professor of Civil Engineering; Thomas K. Hendrick, Instructor in Engineering Mechanics; William LeRoy Slate, Jr., Lecturer on Soils; George P. Clinton, Lecturer on Plant Pathology; George A. Cromie, Lecturer on the Care of Streets and Parks; William G. Anderson, Lecturer on Personal Health and First Aid. The Graduate Advisory Board is composed of Robert Y. Stuart, Samuel T. Dana, Barrington Moore, Thornton T. Munger and Samuel N. Spring.

SHORT FORESTRY COURSES

In addition to the professional courses in forestry, shorter courses are given at more than 25 other colleges and universities. They are variously designed to satisfy an academic or cultural demand, or to provide information for agricultural students. They vary in intensiveness and scope, but contribute largely to the general appreciation of the importance of the forestry problem. The following is a list of schools giving shorter courses in forestry:[1]

[1] This list is based upon information secured from the individual institutions.

Alabama Polytechnic Institute, Auburn, Alabama.—Short course dealing with timber shortage, location of virgin supplies, reforestation, handling of trees and care of the woodlot. Some study of Alabama species. Enrolment averages 25 students. Course in charge of L. M. Ware, Instructor in Horticulture.

University of Arkansas, Fayetteville, Arkansas.—Brief incidental courses in forestry in its relation to the farm and in its general aspects.

Berea College, Berea, Kentucky.—While no organized course in forestry is given at Berea, early institution of such a course is planned. At present the forestry work is limited to the management of the college forest (See Berea College Forest) and a popular course in Mountain Horticulture.

Brown University, Providence, Rhode Island.—Course on trees and wood, taking up trees from human and industrial viewpoints instead of taxonomical, together with smattering of elementary forestry. Walter H. Snell, Assistant Professor of Botany, in charge of work and planning further forestry instruction.

University of Chicago, Chicago, Illinois.—Course in forest ecology covering relation of trees to climate and the general forest formation of the North American Continent; course in ecological surveying in connection with State survey; course in applied ecology. Given by Professors H. C. Cowles and George D. Fuller.

Clemson Agricultural College, Clemson College, South Carolina.—Course required of all sophomores dealing generally with sylviculture, forest management, artificial and natural reforestation, protection, mensuration, wood utilization, lumbering, wood preservation, forest economics and forest finance. Enrolment 72 in 1923-24. Course in charge of D. B. Rosenkrans, Associate Professor of Botany.

Colgate University, Hamilton, New York.—Significance of forestry and trees and wood touched on in botany courses given by Professor W. F. Langworthy.

Connecticut Agricultural College, Storrs, Connecticut.—Forestry curriculum designed to train students to take charge of woodlands and estates in Connecticut and give them prerequisites for Yale School of Forestry. Two hundred acres of woodland set aside for research in hardwood reforestation. Plantations of conifers used

for research. Course covers mensuration, dendrology, elements of forestry, management and surveying, wood structure and care of shade trees. Enrolment 1923-24 term, 12. Course given by Professor A. E. Moss.

University of Delaware, Newark, Delaware.—One course in forestry designed to acquaint student with different species of trees and shrubs and give instruction in forest planting, establishment, maintenance and utilization. Elective for juniors and seniors. Enrolment 1923-24 term 7. Given by L. R. Detjen, Associate Horticulturist.

University of Florida, Gainesville, Florida.—Course in general forestry, covering principles, forest cropping, protection of home woodlot, use of Florida woods, varieties of timber trees and influence of forests on other industries of the State. Required of students taking horticultural studies. Given by Professor W. L. Floyd, head of the Department of Horticulture.

Kansas State Agricultural College, Manhattan, Kansas.—Courses in farm forestry, covering forest conservation and timber handling; dendrology, covering relative value of species; sylviculture, covering tree growing for economic needs. Courses given by Professor Albert Dickens.

Lehigh University, Bethlehem, Pennsylvania.—Elementary forestry under Department of Biology. Experimental plot for forest planting and study of conditions of tree growth. Campus and arboretum include trees indigenous to section and many foreign species.

University of Maryland, College Park, Maryland.—Two years' major in farm forestry for all students in agriculture during junior or senior years. Covers study of tree types, kinds of wood, uses of wood and farm woodlot. F. W. Besley, Lecturer on Forestry.

Massachusetts Agricultural College,* Amherst, Massachusetts.—Forestry major in junior or senior years covering dendrology, sylviculture, forest mensuration, arboriculture and wood technology. Prepares for graduate schools of forestry. Lecture course in woodlot management.

* (Information based on U. S. Forest Service data as of November 23, 1921. No answers received to American Tree Association questionnaire.)

Mississippi Agricultural and Mechanical College, Agricultural College, Mississippi.—Limited appropriation forced dropping of organized forestry courses. Only forestry that is incidental to Department of Botany.

Mount Hermon School, Mount Hermon, Massachusetts.—Courses in elementary agriculture emphasizing value and care of farm woodlot.

North Carolina State College of Agriculture and Engineering, West Raleigh, North Carolina.—Extension specialist in forestry devotes time to farm woodlot work among counties. Creation of Department of Forestry planned for 1924.

North Dakota Agricultural College, Agricultural College, North Dakota.—Course in farm forestry covering care and cultivation of groves, timber belts and farm woodlots. Study of species. Average 12 students. General forestry covering distribution and composition of North American forests, effects of forests on streams, lakes, climate, land erosion and soil fertility.

University of Nebraska, Lincoln, Nebraska.—Farm forestry elective for one semester designed for agricultural students. Elementary course designed to inform students on best trees for growth in Nebraska.

Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma.—Short course in forestry now given. Three courses to be given in 1924-25 year, with one fundamental course required of all agricultural students.

Purdue University, Lafayette, Indiana.—Elective courses in forestry maintained in School of Science for 12 years. Average enrolment 30. Courses cover forest botany, pathology, zoology, management, protection, history, utilization; sylviculture; mensuration and technical forestry.

South Dakota State College of Agriculture and Mechanic Arts,* Brookings, South Dakota.—Course in forestry required second semester of sophomore year in horticultural group and third year in three-year school of agriculture. Elective second semester junior year in animal and dairy husbandry groups of four-year agricultural course.

* (Information based on U. S. Forest Service data as of November 23, 1921. No answers received to American Tree Association questionnaire.)

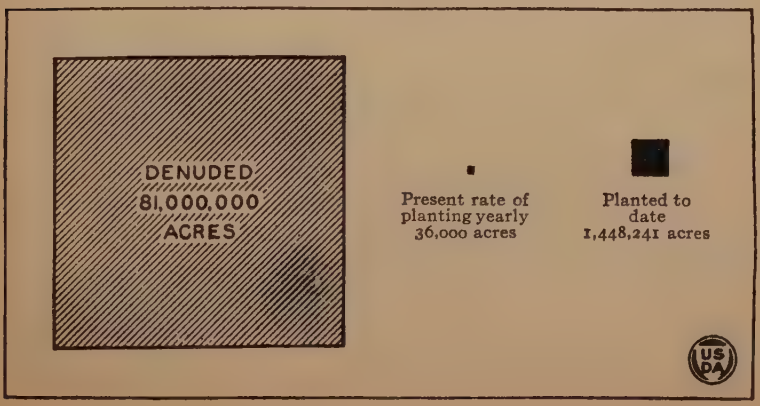
Rhode Island State College, Kingston, Rhode Island.—General elective course in forestry elements given under department of Botany. Fourteen enrolled in 1924. Professor Harold W. Browning in charge.

University of Tennessee, Knoxville, Tennessee.—Instruction in forestry lapsed due to limited means. Reëstablishment hoped for in near future.

University of Vermont, Burlington, Vermont.—Forestry instruction temporarily lapsed owing to resignation of Professor. To be continued with 1924-25 college year, including sylviculture and forestry from standpoint of small owner.

University of Wisconsin, Madison, Wisconsin.—Through coöperation with United States Forest Products Laboratory courses are given in forestry and utilization, wood technology, structural timbers and chemistry of wood utilization. Special opportunity for research is offered. Enrolment 32 first semester 1923-24 year.

Agricultural and Mechanical College of Texas, College Station, Texas.—Elective courses in sylviculture and principles of forestry, covering the planting and care of shade and forest trees, planting of windbreaks, woodlots, etc., and history, general development and situation in forestry. Taught by E. O. Siecke, Professor of Forestry and State Forester, and Assistant Professor R. F. Dreitzler.



ORGANIZED FORESTRY IN STATES

Forestry is an organized activity of government in only thirty-four of the forty-eight states. In some cases it is not given the distinction of a separate state department or even a division, but is delegated to some nearly appropriate body. In North Carolina, for example, the work falls to the Geological and Economic Survey, and in West Virginia to the Chief Game Protector of the Game and Fish Commission.

The States in which forestry has some definite status are: Alabama, California, Colorado, Connecticut, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia and Wisconsin.

The states having no organization are: Delaware, Georgia, Florida, Arkansas, South Carolina, Mississippi, Missouri, Oklahoma, Nebraska, Arizona, New Mexico, Utah, Nevada and Wyoming. In Arkansas, Florida and Georgia there is an aroused public sentiment for the creation of a forestry department and in all three states legislative action is hoped for soon. South Carolina, Mississippi, Missouri and Delaware are other states where a forestry department is particularly needed. The remaining states do not possess forest areas of great importance, or the bulk of these areas are in the hands of the Forest Service, making the creation of a state forestry organization less urgent. In several of the states not officially recognizing forestry, there are forest fire laws, enforced to some extent.

(The following tabulated information for the 48 states has been obtained from and checked by the State Forestry officials in every state having an organization, unless otherwise indicated. For the unorganized states figures and information have been gathered from the United States Forest Service and other sources, much of the data necessarily being based on estimates.)

ALABAMA

Commission of Forestry. Effective October 1, 1923.
Page S. Bunker, State Forester, Montgomery, Alabama.

Land Area of State.—32,818,560 acres.
Original Forested Area.—32,000,000 acres.
Present Forest Area.—20,000,000 acres.
Idle or Unproductive Forest Land.—6,550,000 acres cut-over and not restocking.
Timber Stand.—50,000,000,000 board feet.
State Forests.—None.
National Forests within State.—
Other Publicly-owned forest Area.—None.
Average Annual Lumber Production (1920).—1,439,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$35,000.

Forest Fire Laws.—Forest fire protective system created under new State Forest Law, mobilizing local officials for fire protection. Makes wilful and negligent setting of fires a misdemeanor. System still in process of perfection.

Forest Taxation Laws.—Any lands the owner of which wishes to devote them to forest culture may apply for their entry as Auxiliary State Forests, entering into contract with the State Commission to devote the lands to this purpose. Lands so classified taxed on the value of the land alone until withdrawn or cut, then paying a tax of 10 per cent. of the value of the timber thereon or the timber cut.

Nurseries.—No state nurseries established as yet.

Other Activities of State.—The recent enactment of the law establishing the Forestry Commission has permitted only a general survey of the State's forest resources and only a general plan of administration. Encouragement of farm forestry and a survey of the State's resources among first activity contemplated. Law authorizes the Governor to accept gifts of land to the State to be administered as State Forests by the Commission. State Forester gives forestry instruction at the Alabama Polytechnic Institute and the University of Alabama. Commission consists of the Governor, the Commissioner of Conservation, three practical lumbermen who are owners of timberland and engaged in manufacture, and two land-owning farmers.

ARIZONA

No State Forestry Department

Land Area of State.—72,838,400 acres.
Original Forested Area.—16,320,000 acres.
Present Forest Area.—15,200,000 acres.
Idle or Unproductive Forest Land.—250,000 acres.
Timber Stand.—18,000,000,000 board feet.
State Forests.—None.
National Forests within State.—11,204,304 acres.

Other Publicly-owned Forest Area.—31,130 acres by other political units or under Federal land grants.
Average Annual Lumber Production (1920).—121,196,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No state forest fire protective system. Penalties for firing State or Federal Lands.
No state nurseries.
All State lands under Board of Land Commissioners, which classifies them them for various uses.

ARKANSAS

No State Forestry Department

Land Area of State.—33,616,000 acres.
Original Forested Area.—32,000,000 acres.
Present Forest Area.—22,000,000 acres.
Idle or Unproductive Forest Land.—1,850,000 acres cut-over and not restocking.
Timber Stand.—76,200,000,000 board feet.
State Forests.—None.
National Forests within State.—957,247 acres, including 18,959 under Weeks Law.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production.—1,900,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No State protective system against forest fires. Penalties in law for setting fire to wooded areas. Railroads liable for causing fires. Enforcement difficult.
No special forest taxation laws.
No state nurseries.
Active sentiment being aroused among citizens for State Department. Creation rejected by Legislature in 1923, but prospects are better for 1925. Forest Service carrying on forest fire protection education in State to protect National Forests.

CALIFORNIA

State Board of Forestry. Created in 1905; amended in 1919.
M. B. Pratt, State Forester, Sacramento, California. W. B. Rider, Deputy State Forester.

Land Area of State.—99,617,280 acres.
Original Forested Area.—23,000,000 acres. (Estimate.)
Present Forest Area.—19,196,000 acres in timber and wood lands.
Idle or Unproductive Forest Land.—3,164,000 acres, about 55 per cent. restocking.
Timber Stand.—216,769,000,000 board feet.
State Forests.—95,000 acres of State-owned land not handled by State Forester.
National Forests within State.—19,181,508 acres.

Other Publicly-owned Forest Area.—6492 acres in State Parks; Forests in Indian reservations, 35,000 acres; Forests in National Parks, 440,750 acres.
Average Annual Lumber Production.—1,700,000,000 board feet.
Average Annual Forest Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$57,314. ($30,300 set aside for State Forests in addition.)

Forest Fire Laws.—Responsibility of State for protection of forest and brush lands covers about 15,500,000 acres. Appropriations adequate to protect about one-half. State has about 20 rangers. Compulsory patrol law affecting pine regions requires protection by private owners. Redwood owners have own protection organizations. State, Federal Government and coöperating agencies spent $68,000 in 1923 for protection. State endeavoring to protect slash on privately owned land in pine region, but considerable burning going on for lack of law to prohibit it. Slash burned in redwood region, being apparently the best method. Protection costs vary from 1½ to 2½ cents per acre.

Forest Taxation Laws.—No special taxation laws. Forest land classification bill, providing a tax on land only until maturity of timber, passed at 1923 session of Legislature but vetoed by Governor on grounds of constitutionality. Taxation exemptions written into constitution.

Nurseries.—State nursery of 30 acres. Established primarily to raise trees for highway planting, but there has been large demand for trees for planting by municipalities and on school grounds and other public activity. Trees furnished for foresting city watersheds. Present output about 60,000 trees. Increased planting for windbreak and fuel purposes anticipated.

Other Activities.—State has done no reforestation work but several thousand acres of brush-covered mountain slope in Los Angeles County have been planted by the county forester. Several redwood operators have established nurseries to raise stock for redwood planting. Movement on foot for exchange of land with Federal Government so that State can obtain a State Forest in exchange for scattered areas of State-owned lands.

COLORADO

Department of Forestry, Colorado Agricultural College. Created in 1911.

W. J. Morrill, State Forester and Professor of Forestry, Fort Collins, Colorado.

Area of State.—66,239,000 acres.
Original Forested Area.—21,760,000 acres.
Present Forest Area.—13,200,000 acres.
Idle or Unproductive Forest Land.—5,800,000 acres. (Estimate.)
Timber Stand.—23,400,000,000 board feet.
State Forests.—None organized; 125,000 acres of timber lands owned by State in scattered sections which may be exchanged in order to form State Forests.
National Forests within State.—16 wholly and two in part; total area 14,748,943 acres.

Other Publicly-owned Forest Land.—Small, undetermined area of public domain and about 10,000 acres owned by cities.
Average Annual Consumption.—70,000,000 board feet. (Growth.)
Last Annual Appropriation for Forestry.—$5000.
Forest Fire Laws.—Administration of the State forest fire law is through the county sheriffs and is attended with fair results. The large proportion of National Forests within the State provides effective protection under the Forest Service system. Fire losses low.
Forest Taxation Laws.—No special forest taxation laws, although efforts have been made in the last four years to bring action by the Legislature.
Nurseries.—No State nurseries owing to proximity of Forest Service nurseries and comparative cheapness of the stock. State Forester distributed 50,000 trees in 1923, chiefly for windbreak planting. Forest Service planted 800 acres in 1923 on Pike's Peak watershed. Some exotic species such as Chinese elm grown at Agricultural College nursery.
Other Activities.—Increased interest in ranger and forestry courses at the Colorado Agricultural College, majority of students entering the government service on the National Forests. Colorado storing timber for future, progressing as National Forests progress.

CONNECTICUT

Connecticut State Park and Forest Commission.—Present body created in 1921. From 1901 to 1921 State Forester employee of the Agricultural Experiment Station.
Austin F. Hawes, State Forester, Hartford, Connecticut.

Land Area of State.—3,084,800 acres.
Original Forested Area.—3,000,000 acres.
Present Forest and Idle Area.—1,500,000 acres.
Timber Stand.—1,500,000,000 board feet.
State Forests.—9000 acres.
National Forests within State.—None.
Other Publicly-owned Forest Area.—5000 acres by other political units.
Average Annual Lumber Production.—60,000,000 board feet.
Average Annual Consumption.—300,000,000 board feet.
Last Biennial Appropriation for Forestry.—$72,500.
Forest Fire Laws.—Fire wardens appointed by the State Forester. Five lookout towers in operation. Squad of motorcycle patrolmen. Twelve equipment stations. State encouraging private protective associations. One already formed by 40 land owners with 10,000 acres.
Forest Taxation Laws.—Special forest taxation law permitting classification of not less than five acres of land more valuable than $25 an acre as forest land. Land with timber more than 10 years old taxed separately at not more than 10 mills. Timber less than 10 years taxed on value of land alone at local property rate and paying yield tax of 10 per cent. when cut. Law experimental. (See Forest Taxation.)
Nurseries.—Small nursery started in spring of 1924 to supply trees for planting State Forests.

Other Activities.—State Forester carrying on an active campaign of public education to Connecticut's position of dependence for forest products in contrast with former self-sufficiency. Reforesting of State lands going forward.

DELAWARE

No State Forestry Organization. Elaborate law passed in 1909 creating a State Department but never operative because of lack of appropriation. This law repealed in 1921 giving the State Board of Agriculture power to act to conserve the forests and make rules and regulations it considers necessary.

Land Area of State.—1,257,600 acres.
Original Forested Area.—960,000 acres.
Present Forest Area.—320,000 acres.
Idle or Unproductive Forest Land.—20,000 acres.
Timber Stand.—270,000,000 board feet.
State Forests.—None.
National Forests within State.—None.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production.—14,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No state forest fire protective system.
No special forest taxation laws.
No state nurseries.

FLORIDA

No State Forestry Department

Land Area of State.—35,111,040 acres.
Original Forested Area.—28,800,000 acres.
Present Forest Area.—16,000,000 acres.
Idle or Unproductive Forest Land.—5,300,000 acres, cut-over and not restocking.
Timber Stand.—48,400,000,000 board feet.
State Forests.—None.
National Forests within State.—337,938 acres.
Other Publicly-owned Forest Land.—1920 acres in State Parks.
Average Annual Lumber Production.—1,420,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No state forest fire protective system, although statutes provide a law without adequate enforcing agency. Game and fish wardens charged with checking carelessness with fires by sportsmen. Interests of timber land owners and grazing land users conflict.
No special forest taxation laws but cut-over lands are taxed at a low rate.
No state forest nurseries.
Sentiment in State mobilized in favor of State Department.

GEORGIA

Georgia State Board of Forestry. Created in 1922 with purely investigatory powers and no funds. No effective State organization.

Land Area of State.—37,584,000 acres.
Original Forested Area.—36,480,000 acres.
Present Forest Area.—21,200,000 acres.
Idle or Unproductive Forest Land.—5,000,000 acres cut-over and not restocking.
Timber Stand.—42,000,000,000 board feet.
State Forests.—None.
National Forests within State.—84,417 acres.
Average Annual Lumber Production.—1,000,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No organized forest fire protective system. Railroads liable for damage from fires set by engines.
No special forest taxation laws.
No state nurseries.
Active sentiment in State in favor of creation of State Forestry Department with adequate law. Educational work at State College of Agriculure. Public sentiment aroused by Georgia Forestry Association.

IDAHO

State Land Commission.—Created in 1889.
Forestry Officials.—I. H. Nash, State Land Commissioner, Boise, Idaho. F. G. Miller, Dean, University of Idaho, School of Forestry, Moscow.

Area of State.—53,688,000 acres.
Original Forested Area.—22,940,000 acres.
Present Forest Area.—18,393,333 acres.
Idle or Unproductive Forest Land.—3,966,000 acres (75 per cent. restocking.)
Timber Stand.—84,440,000,000 board feet.
State Forests.—700,000 acres.
National Forests within State.—20,616,286 acres.
Other Publicly-owned Forest Area.—102,450 acres.
Average Annual Lumber Production.—800,000,000 board feet.
Average Annual Consumption.—160,000,000 board feet.
Last Annual Appropriation for Forestry.—$45,000.
Forest Fire Laws.—Forest fire protection under Fallon Forest Fire Law of 1907. State divided into six fire districts. Coöperate with private owners who have organized strong protective organizations. Efficient systems so far as merchantable timber is concerned but not as effective for cut-over land. About $250,000 a year spent collectively for protection.

Forest Taxation Laws.—No special forest taxation laws. Considered by Idaho timber-land owners as one of the outstanding problems for solution.

Nurseries.—No State forest nursery. School of Forestry at Moscow maintains small nursery distributing trees at cost. Output about 100,000 trees annually. Adequate for present demand.

Other Activities.—Activities largely centre in School of Forestry. School studying second-growth white pine from sylvicultural viewpoint. Studying value of black locust plantations. Working to check spread of white pine blister rust. Increased interest among farmers in windbreak and shelter planting.

ILLINOIS

Natural History Survey. Created in 1917, (Previously State Laboratory, Natural History.)

R. B. Miller, State Forester, Urbana, Illinois.

Land Area of State.—35,867,520 acres.

Original Forested Area.—15,000,000 acres.

Present Forest Area.—3,100,000 acres, (Census). State's survey shows tentatively 2,807,161 acres, with 90 per cent. on farms.

Idle or Unproductive Forest Land.—4,000,000 to 5,000,000 acres.

Timber Stand.—As yet undetermined.

State Forests.—None.

National Forests within State.—None.

Other Publicly owned Forest Area.—25,000 acres as Cook County Preserve.

Average Annual Lumber Production.—59,000,000 board feet, lumber.

Average Annual Consumption.—2,353,000,000 board feet.

Last Annual Appropriation for Forestry.—Included in other survey work and sum for forestry not divided. Three foresters at work.

Forest Fire Laws.—No fire protection organization. Protection is much needed, particularly in southern part of the state. Have fire law on the statute books but no means of enforcement. State does not qualify for Federal coöperation.

Forest Taxation Laws.—No special forest taxation law. People rejected new constitution which contained clause: "Areas adapted to forests or forest culture shall be classified for purposes of taxation."

Nurseries.—No State Nurseries. Legislature of 1923 passed law providing for establishment of Forestry Division at the University of Illinois Agricultural Experiment Station for investigation and promotion of forestry by lectures, bulletins and demonstration forests.

Other Activities.—State carrying on survey of forest resources from economic point of view. Study shows 90 per cent. of forest on farms; that 4,810,000 acres of State are hilly or eroded lands; that waste lands on farms amount to 577,663 acres; that annual consumption of railroad ties is 6,000,000, of which State furnishes one-sixth; that consumption of mining timber is 20,000,000 cubic feet for 80,000,000 tons of coal.

INDIANA

Department of Conservation, Division of Forestry. Created in 1901.
Charles R. Deam, State Forester; George R. Phillips, Assistant State Forester, Indianapolis, Indiana.

Land Area of State.—23,068,800 acres.
Original Forested Area.—18,500,000 acres (estimate).
Present Forest Area.—1,305,738 acres, about one-third with acceptable timber stand.
Idle or Unproductive Forest Land.—2,300,000 acres.
Timber Stand.—9,000,000,000 board feet (estimate).
State Forests.—Clark County State Forest, 2898 acres.
National Forests within State.—None.
Other Publicly owned Forest Area.—None.
Average Annual Lumber Production.—258,000,000 board feet.
Average Annual Consumption.—No figures available.
Last Annual Forestry Appropriation.—$14,945.45 spent by division in 1923 from Department of Conservation funds.

Forest Fire Laws.—Township road supervisors charged with fighting fires. Forest fire laws penalize wilful and careless setting of fires. New laws needed.

Forest Taxation Laws.—Special forest taxation law classifying land on which there is a stand of trees or on which the owner agrees to plant to forest. Appraised at $1 an acre and taxed at local property rate. No cutting tax is levied. All stock must be kept off land so classified. More than 7000 acres listed by 160 different owners up to March, 1924. (See Forest Taxation.)

Nurseries.—One State Nursery at Henryville containing about 310,000 hardwood and 225,000 conifer seedlings. Demands from private individuals greater than the supply. About 25,000 seedlings sold at cost in 1923.

Other Activities.—Forestry education and reforestation carried on so far as possible. Activities of Forestry Division chiefly hampered by lack of funds.

IOWA

R. S. Herrick, State Forester, Iowa State Horticultural Society, Des Moines, Iowa.
Prof. G. B. MacDonald, deputy State Forester, Iowa State College, Ames, Iowa.

Land Area of State.—35,574,940 acres.
Original Forested Area.—5,120,000 acres.
Present Forest Area.—2,500,000 acres.
Idle or Unproductive Forest Land.—1,000,000 acres.

* Timber Stand.—400,000,000 board feet.
State Forests.—None (4500 acres in State Parks.)
National Forests within State.—None.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production (1920).—14,300,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—Part of Forest School allotment.
Forest Fire Laws.—None.
Forest Taxation Laws.—Tax exemption law of 1906. Similar to Indiana law taxing classified land being forested on the basis of $1 an acre. About 2500 acres classified under the law.
Nurseries.—No official state nursery, but one is maintained at Iowa State College for use in experimental work in connection with School of Forestry.
Other Activities.—Iowa's problem largely one of farm forestry. About 300,000 farmers with woodlots varying from 1 to 30 acres in size.

KANSAS

Kansas State Agricultural College, Department of Horticulture.
Albert Dickens, State Forester, Manhattan, Kansas.

Land Area of State.—52,335,360 acres.
Original Forested Area.—1,250,000 acres.
Present Forest Area.—1,500,000 acres.
Idle or Unproductive Forest Land.—No estimate.
Timber Stand.—100,000,000 board feet.
State Forests.—None.
National Forests within State.—None.
Other Publicly-owned Forest Area.—200 acres in municipal Forest.
* Average Annual Lumber Production.—4,500,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—Part of State College appropriation.
Forest Fire Laws.—General laws passed in early days for protection of pasture and range effective for forest protection. Penalties for leaving fires unguarded closely observed. Danger of fire is met by community movement. Public sentiment aroused.
Forest Taxation Laws.—No special forest taxation laws.
Nurseries.—State forest nursery work administered from the Fort Hays Branch Experiment Station. About sixty acres supplying trees at cost.
Other Activities.—Natural woodland areas being conserved and, in most cases, improved. Selective cutting followed and some lands along streams being reforested. Catalpa and cottonwoods planted, also increase in growth of pecans and black walnuts. Growing interest in the planting of conifers following successful work of experimentation.

* Forest Service estimate in 1915.
* 1920, including cut of mills in Nebraska.

KENTUCKY

Department of Agriculture, Labor and Statistics.

In 1920 the General Assembly repealed the law establishing the Forestry Commission. The 1924 General Assembly amended and reënacted a law providing for a State Forester and effective in June, 1924.

Land Area of State.—25,715,840 acres.
Original Forested Area.—24,320,000 acres.
Present Forest Area.—9,500,000 acres.
Idle or Unproductive Forest Land.—3,200,000 acres.
Timber Stand.—37,400,000,000 board feet.
State Forests.—3624 acres.
National Forests.—3624 acres.
National Forests within State.—None.
Other Publicly-owned Forest Area.—25,000 acres recently donated to University of Kentucky for experimental purposes.
Average Annual Lumber Production (1920).—421,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$15,000 under new law.

Forest Fire Laws.—General forest fire protection laws on statute books but nothing has been done recently for lack of funds. New law provides for organized fire protection.

Forest Taxation Laws.—No special laws.

Nurseries.—State continued to maintain two nurseries after abolition of Forestry Commission, distributing trees from these nurseries to the public at cost.

Other Activities of State.—New law provides: "that the duties of said State Forester shall be the supervision of all forestry property and the forwarding and advancement of all forest interests in the commonwealth through active management and development of all said property and interests and to initiate such projects as will promote an appreciation on the part of the public and the rising generation of the importance of forest protection and of reforestation to encourage tree planting in general and on the public highways in particular; to grow, collect and distribute seedlings; to form and foster junior forestry clubs; to coöperate with local and civic organizations in the care of trees and planting of more trees; to provide for organized forest fire protection; to coöperate with the Federal Government, state departments and landowners along such lines as will aid the state in the perpetuation of its forests, the promotion of tree growth and tree planting and the redemption of waste land for agricultural purposes; to encourage an interest in forestry by correspondence, press, pamphlets, reports, moving pictures and organizations and to do any and all things in relation thereto under the authority and direction of the Commissioner of Agriculture."

LOUISIANA

Division of Forester, Department of Conservation, created 1904, effective 1918; reënacted, 1922.

V. H. Sonderegger, Superintendent of Forestry, New Orleans, Louisiana.

Land Area of State.—29,061,760 acres.

Original Forested Area.—22,000,000 acres pine and hardwoods.

Present Forest Area.—3,600,000 acres.

Idle or Unproductive Forest Land.—13,600,000 acres.

Timber Stand.—30,000,000,000 board feet, virgin and second growth.

State Forests.—2200 acres.

National Forests within State.—None.

Other Publicly-owned Forest Area.—60,000 acres public shooting ground; 300,000 acres bird sanctuaries. Mostly marsh lands.

Average Annual Lumber Production.—3,000,000,000 board feet.

Average Annual Consumption.—Unavailable.

Last Annual Appropriation for Forestry.—$60,000.

Forest Fire Laws.—Fire prevention 75 per cent. of Louisiana's problem. Meeting issue by education and by a district patrol system. Twenty permanent men and about 125 during danger season. Coöperation with landowners during hazard period. Laws provide penalties for wilful and negligent setting of fires. Require spark arresters for locomotives, logging engines, etc. Require railroads to keep rights of way clear of combustible material, Coöperate under Weeks Law. Spend about $270,000 by all agencies to protect about 16,000,000 acres. Two lookout towers.

Forest Taxation Laws.—Special law providing for contract between timberland owners and state, setting lower assessment of lands growing timber. (This law treated at greater length under "Forest Taxation.")

Nurseries.—Some nursery work at the State Forest at Woodworth and in coöperation with the Great Southern Lumber Company at Bogalusa and the Urania Lumber Company at Urania.

Other Activities of State.—Assistance given farmers and small landowners by Farm Forester, E. S. Moncrief. Services free. Boys' forestry clubs carry on protective and reforestation work under farm forester. More than a dozen Boy Scout troops practising forestry. Forestry taught in schools. Superintendent of Education to install forestry textbooks in the fall of 1924 for all grades in public schools. Speeches before civic clubs. Summer Forest Camp maintained through coöperation of Division and State University to train men for forestry work. Exhibits maintained. Coöperate with U. S. Forest Experiment Station at New Orleans. Assistance to lumbermen and landowners in developing efficient logging operations and closer utilization of waste products. Lumber companies doing research and reforestation.

MAINE

Forest Service. Created in 1891.
Neil L. Violette, Acting Forest Commissioner, Augusta, Maine.

Land Area of State.—19,132,800 acres.
Original Forested Area.—18,560,000 acres.
Present Forest Area.—15,000,000 acres.
Idle or Unproductive Forest Land.—1,957,000 acres.
Timber Stand.—35,000,000,000 board feet (estimate).
State Forests.—None.
National Forests within State.—32,165 acres.
Other Publicly-owned Forest Area.—800 acres towns and other reservations.
Average Annual Lumber Production.—425,000,000 board feet.
Average Annual Consumption.—924,000,000 board feet.
Last Annual Appropriation for Forestry.—$200,000 (all purposes).

Forest Fire Laws.—All timberland owners and unorganized townships placed in a Forestry District, covering 10,000,000 acres. Subdivided into 30 districts in charge of fire warden. Tax of 2¼ mills on property in district yielding $165,000. Penalties for starting fires. Slash law requiring clearing of slash within 50 feet of road. Railroad patrol act requiring coöperation in dry season. Estimated $400,000 to $500,000 needed adequately to protect whole forested area. $21,500 under Weeks Law.

Forest Taxation Laws.—No special forest taxation law. Attempt to enact one failed in 1923 Legislature.

Nurseries.—One State Nursery at Orono. Inadequate to meet the demands for stock.

Other Activities.—Extension work in farm forestry carried on. Investigative and protective work in connection with activities of spruce bud worm and the white pine blister rust.

MARYLAND

State Department of Forestry. Created in 1906.
F. W. Besley, State Forester, 815 Calvert Building, Baltimore, Maryland.
Karl E. Pfeiffer, Joshua M. Cope, Samuel Corbin, Assistant Foresters.

Land Area of State.—6,362,240 acres.
Original Forested Area.—5,760,000 acres.
Present Forest Area.—2,228,000 acres.
Idle or Unproductive Forest Land.—350,000 acres.
Timber Stand.—8,800,000,000 board feet.
State Forests.—3835 acres.
National Forests within State.—None.
Other Publicly-owned Forest Area.—9400 acres by State Institutions and cities.
Average Annual Lumber Production (1920) (Cut).—85,000,000 board feet.
Average Annual Consumption.—208,000,000 board feet.
Last Annual Appropriation for Forestry.—$30,000.

Forest Fire Laws.—System of local fire wardens with power to employ fire-fighting assistants. Chain of fire observation towers covering most of the state. Satisfactory results being obtained for money expended. Fires in 1923—455. Acres burned—87,553. Damage—$288,934.06.

Forest Taxation Laws.—No special forest taxation laws. Taxation on basis of assessment at the local property rate.

Nurseries.—One State Forest nursery growing trees for forest and roadside planting. Covers 10 acres. Demand for output about five times the supply. Output about 100,000 trees a year. Forest and shade trees sold at the cost of production.

Other Activities.—Growing public interest, particularly for forest protection, tree-planting and extension of State Forests. Public lectures given. Use of State Forests for recreation awakening popular interest. Many land owners doing planting, some on large scale. Advice given to woodland owners by State. Coöperation with the United States Department of Agriculture's Extension Service.

MASSACHUSETTS

Department of Conservation, Division of Forestry, W. A. L. Bazeley, Commissioner. Created in 1904.

Forestry Official.—H. O. Cook, Chief Forester, Boston, Mass.

D. C. A. Galarneau, Frank L. Haynes, James Morris, R. B. Parmenter, Assistant Foresters. M. C. Hutchins, Chief Fire Warden. E. A. Smith, Moth Work.

Land Area of State.—5,144,960 acres.

Original Forested Area.—5,050,000 acres.

Present Forest Area.—2,000,000 acres.

Idle or Unproductive Forest Land.—1,000,000 acres.

Timber Stand.—3,500,000,000 board feet.

State Forests.—22 State Forests totaling 75,000 acres.

National Forests within State.—None.

Other Publicly-owned Forest Area.—20,000 acres State Institutions; 47,000 acres by cities and towns.

Average Annual Lumber Production.—150,000,000 board feet.

Average Annual Consumption.—1,000,000,000 board feet.

Last Annual Appropriation for Forestry.—$470,000 (1923, all purposes).

Forest Fire Laws.—System of state fire wardens and local wardens. Forty-one fire towers as part of practically complete chain. Comprehensive code of laws providing penalties for negligence and for malicious setting of fires; requiring preventive measures by railroads and sawmills. 2500 fires in 1923 burned 49,000 acres. Appropriation for fires $50,000, plus $8500 under Weeks Law.

Forest Taxation Laws.—Special forest taxation law permitting classification of land with taxation on valuation of land alone. Standing growth free until cut or reached specified average yield per acre, then paying 6 per cent. on stumpage value of the trees. (See Forest Taxation.)

Nurseries.—Six state nurseries with 15,000,000 trees of all ages. Two million four-year transplants. Sell only four-years. Million sold in 1923 returning $9000. Nursery appropriation $20,000.

Other Activities.—Carrying forward acquisition of State Forests. Four hundred thousand transplants set out on State Forests in 1923. Timber valued at $10,000 removed in 1923. Educational work in blister control. Examination of private woodlands. Advice to farm woodlot owners. Forest survey by counties. Suppression of gypsy moth appropriation, $135,000.

MICHIGAN

Department of Conservation. (Forestry Commission created in 1899: Public Domain Commission, 1909; Present Commission, 1921.)
Marcus Schaaf, State Forester, Lansing, Michigan.

Land Area of State.—36,370,779 acres.
Original Forested Area.—35,200,000 acres.
Present Forest Area.—18,000,000 acres, including immature timber.
Idle or Unproductive Forest Land.—6,000,000 acres.
Timber Stand.—45,000,000,000 board feet.
State Forests.—105,000 acres; about 675,000 acres State-owned and controlled land.
National Forests within State.—180,000 acres.
Other Publicly-owned Forest Area.—None.
Average Annual Forest Production.—800,000,000 board feet.
Average Annual Consumption.—1,500,000,000 board feet.
Last Annual Appropriation for Forestry.—$75,000.

Forest Fire Laws.—Protection system under Director of Conservation and chief fire warden. Deputy and assistant wardens in charge of preventing and putting out fires in designated districts. Power to summon help. Officers charged with enforcing regulations. Penalties for wilful, negligent or careless setting of fires; for leaving fires unquenched; for defacing warning placards. Spark arresters required on engines. Woodland territory under law covers forest and brush land.

Forest Taxation Laws.—No special forest taxation laws except partial exemptions for farmers' woodlots, but under such restrictions that it has been little availed of. Yield tax bill passed at 1923 session of the Legislature but vetoed by the Governor.

Nurseries.—One forest nursery at Higgins Lake Forest, Crawford County. Covers 12 acres. Annual output between 3,500,000 and 4,000,000 trees. Stock sold to public at cost but public consumption comprises only about five per cent. of output, the bulk being used for state planting.

Other Activities.—Michigan has been reforesting at the rate of about 2000 acres of state land a year to a total of about 15,000 acres up to 1924. Land-economic survey being carried on by the Conservation Commission. Intensive study. Establishment of the Lake States Forest Experiment Station at St. Paul, Minnesota, by Federal Government promises aid for Michigan.

MINNESOTA

Minnesota State Forest Service. Created in 1911.
G. M. Conzet, acting State Forester, Old State Capitol, St. Paul, Minnesota.

Land Area of State.—51,749,120 acres.
Original Forested Area.—38,400,000 acres.
Present Forest Area.—27,000,000 acres in forest growth of some kind.
Idle or Unproductive Forest Land.—6,000,000 acres.
Timber Stand.—38,000,000,000 board feet.
State Forests.—400,000 acres.
National Forests within State.—1,250,000 acres.
Other Publicly-owned Forest Area.—1,700,000 acres owned by state being sold off.
Average Annual Lumber Production (cut).—1,500,000,000 board feet.
Average Annual Consumption.—1,740,000,000 board feet (700,000,000 shipped out).
Last Annual Appropriation for Forestry.—$150,000.

Forest Fire Laws.—Timber country divided into districts with patrolmen under district rangers. Telephone lines, lookout towers and roads part of protective system. Draining of peat lands increasing danger. Laws authorize requiring railroads to provide patrols during hazard season. Spark arresters required and other regulations. Rules require careful burning of slash. Permit necessary before setting running fire. Penalties for careless and malicious setting of fires. About $250,000 annual fire loss. 20,000,000 acres need patrolling. 1250 fires in 1923. About $400,000 available from all sources for fire work in 1923.

Forest Taxation Laws.—No special forest taxation laws at this time. Amendment to constitution to encourage and promote forestation by changes in tax law to be submitted to people in 1924 election.

Nurseries.—State Forest Service has no nurseries of its own but coöperates with the University of Minnesota, which maintains nurseries at Cloquet and Itasca State Park. Working toward goal of planting a million trees a year on state lands and having half-million for other public and private use.

Other Activities.—Forest work supervised by State Forestry Board of nine. State Forester charged with acquainting himself with conditions in state; with coöperating with counties, towns and others in forest protection and promotion; with advancing education through publications and lectures; with general direction of the state's fire protective work. In addition to state's reforestation program on state lands, black walnuts, green ash and American elm are being planted on main trunk highways. Hope to plant about 30,000 such trees yearly. Clubs and American Legion posts coöperating. Demonstration plantings done at advantageous points as public lesson in reforestation. Municipal forest authorized and started.

MISSISSIPPI

No State Forestry Department

Land Area of State.—27,751,680 acres.
Original Forested Area.—25,800,000 acres.
Present Forest Area.—15,600,000 acres.
Idle or Unproductive Forest Land.—3,000,000 acres cut-over and not restocking.
Timber Stand.—81,200,000,000 board feet.
State Forest.—None.
National Forests within State.—None.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production.—2,700,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No forest fire protective system. Statutes provide penalties for wilful and malicious setting of fires. Railroads responsible for damage to property from locomotive fires.
New special forest taxation law exempting growing timber. Authorizes classification of land growing or planted to timber and provides severance tax of 10 per cent. of stumpage value at maturity of trees.
No state forest nurseries.

MISSOURI

No State Forestry Department

Land Area of State.—43,985,280 acres.
Original Forested Area.—32,000,000 acres.
Present Forest Area.—16,800,000 acres.
Idle or Unproductive Forest Land.—100,000 acres cut-over and not restocking.
Timber Stand.—7,800,000,000 board feet.
State Forests.—None.
National Forests within State.—None.
Other Publicly-owned Forest Area.—50,000 acres by State institutions or under Federal land grants.
Average Annual Lumber Production.—260,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No forest fire protective system. Laws prohibit and seek to punish careless or malicious setting of fires. Railroads made liable for fires along rights of way.
No special forest taxation laws.
No state nurseries.

MONTANA

State Forest Department. Created in 1909.
R. P. McLaughlin, State Forester, Missoula, Montana.

Area of State.—94,196,480 acres.
Original Forested Area.—27,200,000 acres.
Present Forest Area.—22,246,000 acres.
Idle or Unproductive Forest Land.—3,084,000 acres.
Timber Stand.—54,000,000,000 board feet.
State Forests.—523,000 acres.
National Forests within State.—15,933,889 acres.
Other Publicly-owned Forest Area.—3,000,000 acres, National Parks, Indian and military reservations and public domain.
Average Annual Lumber Production (cut).—400,000,000 board feet.
Average Annual Consumption (Locally).—250,000,000 board feet.
Last Annual Appropriation for Forestry.—$39,375.

Forest Fire Laws.—Forest fire protection program of coöperation with Federal government and private timberland owners' protective associations. State law prohibits burning of forest material between June 1 and September 30 without permit from State Forester or warden or ranger, and then in accord with terms of permit. Penalties for malicious and careless setting of fires. Slash must be burned within one year of cutting.

Forest Taxation Laws.—No special forest taxation laws.

Nurseries.—No State Nurseries.

Other Activities.—Chief activity is to lay foundation of an effective forestry department and establish a forest policy. Policy is to cut and market mature timber; to conserve all forest growth; to regulate cutting on State Forests according to forestry practice; to enlarge and extend the State Forests; to aid in forest protection and conservation.

NEBRASKA

No State Forestry Department

Land Area of State.—49,157,120 acres.
Original Forested Area.—1,600,000 acres.
Present Forest Area.—880,000 acres.
Idle or Unproductive Forest Land.—Undetermined.
Timber Stand.—1,200,000,000 board feet.
State Forests.—None.
National Forests within State.—205,944 acres.
Other Publicly-owned Forest Area.—42 acres by one city. 640 acres in Pine Ridge State Park.
Average Annual Lumber Production.—500,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.

Forest Fire Laws.—No forest fire protective system. Statutes provide penalties for setting fires and require railroads to clear rights of way of inflammable material so far as possible.

Forest Taxation Laws.—None.

State Nurseries.—None.

Other Activities of State.—Legislature in 1921 created the division of conservation and survey at the University of Nebraska to survey the natural resources of the State, including the forests; to investigate the conservation problem of the State; to appoint the member of the division State Forester; to assist in developing the forest resources and parks of the State; and to enter into such coöperative agreements with the Federal Government as are necessary in surveys and investigations. S. E. Condra, Director of Division.

NEVADA

No State Forestry Department

Land Area of State.—70,285,440, acres.
Original Forested Area.—3,904,000 acres.
Present Forest Area.—5,500,000 acres.
Idle or Unproductive Forest Land.—100,000 acres.
Timber Stand.—2,200,000,000 board feet.
State Forests.—None.
National Forests within State.—4,976,513 acres.
Other Publicly-owned Forest Area.—None.
Average Annual lumber production.—20,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No protective organization. Heavy penalties for wilful setting of fires.
No special taxation laws.
No state nurseries.

NEW HAMPSHIRE

Forestry Department. Created in 1909.
John H. Foster, State Forester, Concord, New Hampshire.

Land Area of State.—5,779,840 acres.
Original Forested Area.—5,760,000 acres.
Present Forest Area.—4,435,000 acres.
Inferior and Idle Forest Land.—1,745,000 acres.
Timber Stand.—7,400,000,000 board feet.
State Forests.—18,000 acres.
National Forests within State.—404,345 acres.
Other Publicly owned Forest Area.—12,000 acres by political units beside state.
Average Annual Lumber Production (cut).—350.000.000 board feet.
Average Annual Consumption.—650,000,000 board feet.
Last Annual Appropriation for Forestry.—$73,000 (all purposes).

Forest Fire Laws.—Entire state under protection. Divided into townships with wardens and deputies. System of telephones and lookout towers. Public recognition of cost of fires and coöperation in protection and fire fighting. 15/100 of one per cent. burned over annually. Permits required for kindling fire on public land. Permits for burning brush in or near woodland. Penalties for carelessness; spark arresters for steam sawmills required. Railroads must use spark arresters, clear rights of way and patrol danger sections in dry season.

Forest Taxation Laws.—Special forest taxation law of 1923 permits classification of woodlands up to 50 acres. Land taxed as land alone. Owner must grow trees and pay tax for one year at usual rate when timber is cut. (See Forest Taxation.)

Nurseries.—One state nursery with annual production of about 250,000 trees. Adequate to meet state's program, but insufficient to supply public demand. Enlarging nursery as funds are available.

Other Activities.—Blister rust control agents have shown value of contact with landowners in helping them to work out farm management problems. Public interest keen in New Hampshire. State reforesting own lands as rapidly as resources permit.

NEW JERSEY

Department of Conservation and Development. (Forest Park Reservation Commission created in 1906 and merged into present department in 1915.)

C. P. Wilber, State Forester, Trenton, New Jersey.

Land Area of State.—4,808,960 acres.

Original Forested Area.—4,480,000 acres.

Present Forest Area.—2,000,000 acres.

Idle or Unproductive Forest Land.—1,400,000 acres.

Timber Stand.—1,640,000,000 board feet and 5,000,000 cords fuelwood.

State Forests.—16,540 acres.

National Forests within State.—None.

Other Publicly-owned Forest Area.—36,100 acres owned by communities or counties.

Average Annual Lumber Production.—230,000,000 board feet including all.

Average Annual Consumption.—600,000,000 board feet.

Last Annual Appropriation for Forestry.—$70,000 for protection; $30,000 all other.

Forest Fire Laws.—State fire warden and up to six division fire wardens devoting entire time to forest fire service. Township wardens required, with power to elect deputies. Wardens charged with enforcing all forest statutes and fighting fires. Permits required for fires. Penalties for obstructing wardens, careless or malicious setting of fires, firing or cutting timber on State Forests. Twenty-nine section wardens added October, 1923, each in charge of sub-divisions of the three major divisions. Give part-time service but must spend sufficient time to organize protective work and conduct preventive and control work effective in own section.

Forest Taxation Laws.—No special forest taxation laws.

Nurseries.—No state nurseries except small seed beds for raising stock of species not available from commercial nurseries. Used for experiment work by state. Forest planting stock distributed to planters from reservations made by state in commercial nurseries. State acting as collector of orders only with no commission.

Other Activities.—Legislature in 1923 doubled appropriation for forest fire protection. Between 250,000 and 500,000 trees set out in forest plantations in 1923. State has 113 municipal Shade Tree Commissions carrying on roadside planting. Department promotes educational work through press, printed matter and through field and speaking contact with the public and property owners.

NEW MEXICO

No State Forestry Department

Land Area of State.—78,401,920 acres.
Original Forested Area.—14,528,000 acres.
Present Forest Area.—13,000,000 acres.
Idle or Unproductive Forest Land.—500,000 acres.
Timber Stand.—24,000,000,000 board feet.
State Forests.—None.
National Forests within State.—8,535,984 acres.
Other Publicly-owned Forest Area.—170,000 acres by State institutions or under Federal Land Grant.
Average Annual Lumber Production (1920).—112,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$1900 for fire protection.
Forest Fire Laws.—State forest fire laws prohibiting setting fires and punishing neglect and maliciousness in causing fires. Enforced so far as limited funds permit. $800 received under Weeks Law in 1923-24.
Forest Taxation Laws.—No special forest taxation laws. State tax department follows policy of not levying excessive tax on stumpage.
State Nurseries.—None.
Other Activities of State.—State Land Commissioner authorized to coöperate with Federal and private agencies in the practice of forestry and watershed protection. Administers timber growing on state lands.

NEW YORK

Conservation Commission, Division of Lands and Forests. First work under Forest Commission, created in 1885. Alexander MacDonald, Conservation Commissioner.

C. R. Pettis, Superintendent of Forests, Albany, New York.

Land Area of State.—30,459,560 acres.
Original Forested Area.—30,080,000 acres.
Present Forest Area.—12,000,000 acres (actual and potential, about 4,000,000 acres with merchantable timber).

Idle and Unproductive Forest Land.—4,000,000 acres.
Timber Stand.—26,000,000,000 board feet.
State Forests.—1,990,000 acres.
National Forests within State.—None.
Other Publicly-owned Forest Area.—20,000 acres by State Institutions; 169,000 acres by political units besides state.
Average Annual Lumber Production.—350,000,000 board feet.
Average Annual Consumption.—1,280,000,000 board feet.
Last Annual Appropriation for Forestry.—$550,000 ($500,000 unexpended from 1917 bond issue for State Forests).

Forest Fire Laws.—System of district rangers, paid ranger forces, observations, fire wardens and fire towers. Cover entire forest fire area of state. State appropriation for fires $160,000. Get $21,500 under Weeks Law.

Forest Taxation Laws.—Three special forest taxation laws passed in 1912 but put to little use due to complicated system and statutory requirements.

Nurseries.—Developed nursery of 205 acres at Saratoga. In 1923 there were 8,671,707 trees shipped for reforestation purposes. Big demand from private and municipal sources. About 81,000,000 trees set out on about 81,000 acres in last 21 years.

Other Activities.—State department coöperating with extension service of the State College of Agriculture and Farm Bureau agent under Lever Act in advising about farm forestry. Extensive program worked out for reforesting idle land.

NORTH CAROLINA

North Carolina Geological and Economic Survey. Created in 1905.
J. S. Holmes, State Forester, Chapel Hill, North Carolina.

Land Area of State.—31,900,000 acres.
Original Forested Area.—31,000,000 acres.
Present Forest Area.—21,130,000 acres.
Idle or Unproductive Forest Land.—4,220,000 acres.
Timber Stand.—30,000,000,000 board feet.
State Forests.—None.
National Forests within State.—348,319 acres.
Other Publicly-owned Forest Area.—State parks, 1224 acres; State institutions, 21,811 acres; swamp lands, 77,000 acres; municipal forests, 26,000 acres. Total 126,035 acres.
Average Annual Lumber Production.—4,000,000,000 board feet.
Average Annual Consumption.—5½ billion board feet.
Last Annual Appropriation for Forestry.—$24,000.

Forest Fire Laws.—Fairly adequate laws although small appropriations have prevented organization of protection in more than 24 of 100 counties. Penalties for firing grass, brush and woodlands without due notice and proper care; for careless handling of campfires; for incendiarism. Coöperation between county commissioner and State Forester for protection provided.

Forest Taxation Laws.—No special forest taxation laws. Forest land now taxed under general laws with other real estate. Growing sentiment for special legislation, especially to encourage farm woodlots and owners of land fitted for forestry.

Nurseries.—No state nurseries. Growing public demand for planting stock. Appropriation for establishment of nursery being sought.

Other Activities of State.—Geological and Economic Survey publishes a bi-weekly bulletin entitled *Natural Resources*. Advice and assistance given along forestry lines within limits of available funds.

NORTH DAKOTA

No State Forestry Department. State Forester designated by Governor.

C. B. Waldron, Dean of Agricultural College, Grand Forks, N. D., State Forester.

Land Area of State.—44,917,120 acres.
Original Forested Area.—640,000 acres.
Present Forest Area.—500,000 acres.
Idle or Unproductive Forest Land.—Insignificant.
Timber Stand.—3,000,000 board feet.
State Forests.—None.
National Forests within State.—None.
Other Publicly-owned Forest Area.—250 acres in State Park.
Average Annual Lumber Production.—Negligible.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.

Forest Fire Laws.—No fire protective system.

Forest Taxation Laws.—No special severance tax law. Small bonus provided for planting and cultivating trees.

State Nurseries.—None.

OHIO

Department of Forestry, Ohio Agricultural Experiment Station. Created in 1906.

Edmund Secrest, State Forester, Wooster, Ohio.

Land Area of State.—26,073,600 acres.
Original Forested Area.—25,600,000 acres.
Present Forest Area.—3,200,000 acres.
Idle or Unproductive Forest Land.—1,750,000 acres.
Timber Stand.—9,000,000,000 board feet.
State Forests.—22,621 acres.
National Forests within State.—None.

Other Publicly-owned Forest Area.—11,477 acres owned by communities or districts; 19,500 acres owned by state and quasi-public institutions.
Average Annual Lumber Production.—130,000,000 board feet.
Average Annual Consumption—1,400,000,000 board feet.
Last Biennial Appropriation for Forestry.—$200,500, $100,000 of which was for purchase of State Forests.
Forest Fire Laws.—About 1,100,000 acres of land require forest protection. About 750,000 acres are being adequately protected through coöperation under Weeks Law, and organized system in state. Local fire wardens and deputies in charge of districts and sub-districts. Patrols in time of drouth. Permission to start fires required. Penalties for wilful and careless setting of fires. State Forester given authority to devise regulations and methods of control and protection.
Forest Taxation Laws.—No special forest taxation laws.
Nurseries.—State nurseries aggregating 40 acres. During 1923, 214,000 trees distributed to landowners, and about equal number purchased and planted from private nurseries. Demand exceeds the supply. Plan to build state nurseries up to 2,500,000 annual output or more when required.
Other Activities.—Ohio is an agricultural State. Problem largely concerning the management of farm woods and planting of idle and waste lands on farms. Grazing of woodlands has had serious effect on forest lands. Ohio Ohio forestry more a matter of protection against grazing and fires and development of native woods. Artificial reforestation important, but not paramount.

OKLAHOMA

No State Forestry Department

Land Area of State.—44,424,960 acres.
Original Forested Area.—16,896,000 acres.
Present Forest Area.—8,800,000 acres.
Idle or Unproductive Forest Land.—1,450,000 acres cut-over and not restocking.
Timber Stand.—12,000,000,000 board feet. (Estimate.)
State Forests.—None.
National Forests within State.—61,480 acres.
Other Publicly owned Forest Area.—16,000 acres in game preserve.
Average Annual Lumber Production (1920).—150,000,000 board feet.
Average Annual Consumption.—550,000,000 board feet.
Last Annual Appropriation for Forestry.—None.
Forest Fire Laws.—No definite forest fire protective system. Statutes make railroad companies liable for damage from fires along their rights of way.
Forest Taxation Laws.—None.
State Nurseries.—None.
Other Activities of State.—Superintendent of Public Instruction and president of State Board of Agriculture have powers of administration and disposal over State lands. The Agricultural and Mechanical College has a forestry department charged with giving courses in forestry in the School of Agriculture, conducting forestry extension work and experimenting in tree planting. Christian Jensen, head of Forestry Department, Stillwater, Oklahoma.

OREGON

State Board of Forestry. Created in 1907.

F. A. Elliot, State Forester, Portland, Oregon, Lynn F. Cronemiller, deputy State Forester.

Area of State.—61,887,000 acres.
Original Forested Area.—35,200,000 acres.
Present Forest Area.—21,344,000 acres.
Idle or Unproductive Forest Land.—4,904,000 acres.
Timber Stand.—393,558,000,000 board feet.
State Forests.—74,000 acres.
National Forests within State.—13,137,447 acres.
Other Publicly owned Forest Area.—None.
Average Annual Lumber Production.—4,000,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$42,500.

Forest Fire Laws.—Fire warden and district system. Burning slash or brushland without permit or operating logging engines without spark arresters forbidden from June 1 to October 1. Compulsory patrol requires timberland owners to furnish patrol approved by state board during fire season. Makes unlawful negligence in setting fires or building camp fires. Requires clearing of rights of way by builders of trails, roads, railroads, power lines or telephone lines. 302 paid fire wardens outside of National Forests.

Forest Taxation Laws.—No special forest taxation law. Classification and severance tax law passed at 1923 session of Legislature vetoed by the Governor on the ground that it would give unfair advantage to timberland owners and be disadvantageous to general body of taxpayers.

Nurseries.—No state forest nurseries.

Other Activities of State.—General educational work in behalf of forestry and forest protection.

PENNSYLVANIA

Department of Forests and Waters. Created in 1895.

Robert Y. Stuart, Secretary and State Forester, Harrisburg, Pa. Lewis E. Staley, Deputy.

Land Area of State.—28,692,480 acres.
Original Forested Area.—28,160,000 acres.
Present Forest Area.—13,024,399 acres.
Idle or Unproductive Forest Land.—5,000,000 acres.
Timber Stand.—11,676,211,200 board feet and 48,650,881 cords.
State Forests.—1,131,276 acres.
National Forests within State.—100,000 acres.
Other Publicly-owned Forest Area.—19,000 acres by communities; 47,000 other State land.

Average Annual Lumber Production.—510,000,000 board feet.
Average Annual Consumption.—2,719,200,000 board feet.
Last Annual Appropriation for Forestry.—$649,500.

Forest Fire Laws.—Chief, district and local fire wardens charged with fighting fires, carrying on protection and promoting education, and empowered to enforce forest fire statutes. System of fire towers, observation stations and telephone lines provided for. Commissioners may coöperate with individuals or associations in protective work. Penalties for setting fire carelessly or maliciously, for mutilating notices or for refusal of railroads to provide reasonable protection. Counties, cities, boroughs or townships authorized to appropriate money for protection.

Forest Taxation Laws.—Classification of land for taxation purposes under Auxiliary Forest Reserve. Land must be used exclusively for forest production and may be assessed at not more than $1 an acre paying a yield tax at time of cutting. No limit on amount of land that may be classified. Total of 26,114 acres classified. (See Forest Taxation.)

Nurseries.—Three large and two small nurseries totalling 27 acres. Nine other small nurseries in coöperation with State institutions. Contain about 33,000,000 trees with 10,000,000 available for 1924. In 1923 there were 6,008,649 forest trees from State nurseries planted on waste land, of which 5,079,930 were distributed free to private individuals. On State Forests 551,426 trees were set out in 1923 at average cost of $12.12 an acre. During 25 years 34,907,279 trees on 23,000 acres at average cost of $9.29 an acre on State owned land.

Other Activities.—Department maintained forestry exhibit at 8 county fairs. Gave away small seedlings. Motor truck with motion pictures toured forest districts. Under plan of assisting timberland owners 520 tracts totalling 180,913 acres examined in 1923. Comprehensibe fire tower system completed of 102 steel and several wooden towers. Blighted chestnut removed from State Forests. Joint resolution passed by Legislature for amendment permitting $25,000,000 bond issue for purchase of forest lands by State.

RHODE ISLAND

Commissioner of Forestry. Created in 1906.
Jesse B. Mowry, Commissioner, Chepachet, Rhode Island.

Land Area of State.—682,880 acres.
Original Forested Area.—640,000 acres.
Present Forest Area.—256,000, acres.
Idle or Unproductive Forest Land.—25,000 acres.
Timber Stand.—700,000,000 board feet.
State Forests.—None.
National Forests within State.—None.
Other Publicly-owned Forest Land.—None.
Average Annual Lumber Production (1920).—14,392,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$11,500.

Forest Fire Laws.—Five forest fire lookout stations on summits of highest hills in State, specially equipped for sighting forest fires. Warden system with general forest fire code.

Forest Taxation Laws.—Provides tax exemption over 15 years on classified plantations of certain species of trees planted at least 500 to the acre. Law limits holdings classified by any one individual or corporation to 300 acres and provides that lands so classified shall be under forest management as directed by the Commissioner of Forestry.

Nurseries.—No state forest nurseries.

Other Activities of State.—Chief problem is keeping out forest fires. Some educational work carried on in cooperation with the educational authorities.

SOUTH CAROLINA

No State Forestry Department

Land Area of State.—19,516,800 acres.
Original Forested Area.—17,920,000 acres.
Present Forest Area.—12,600,000 acres.
Idle or Unproductive Forest Land.—1,900,000 acres cut-over and not restocking.
Timber Stand.—28,300,000,000 board feet.
State Forests.—None.
National Forests within State.—18,558 acres.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production.—020,000,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No forest fire protective system.
No special tax laws.
No state nurseries.

SOUTH DAKOTA

No Regular State Forestry Department. Theodore Shoemaker, Custer, South Dakota, Forest Supervisor.

Land Area of State.—49,195,520 acres.
Original Forested Area.—1,920,000 acres.
Present Forest Area.—1,320,000 acres.
Idle or Unproductive Forest Land.—100,000 acres.
Timber Stand.—1,000,000,000 board feet.
State Forests.—61,440 acres.
National Forests within State.—1,057,747 acres.
Other Publicly-owned Forest Area.—26,400 acres by State institutions.
Average Annual Lumber Production (1920).—45,100,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$8620 (1923).

Forest Fire Laws.—Spent $5280 for fire protection in 1923. Received $100 under Weeks Law. No special forest taxation laws. No State nurseries.

TENNESSEE

Division of Forestry, State Department of Agriculture. Created as Bureau, 1921.

Rufus S. Maddox, State Forester, Nashville, Tennessee.

Land Area of State.—26,894,000 acres.
Original Forested Area.—25,600,000 acres.
Present Forest Area.—9,000,000 acres. (Estimate.)
Idle or Unproductive Forest Land.—1,500,000 acres.
Timber Stand.—65,000,000,000 board feet.
State Forests.—None.
National Forests within State.—241,210 acres.
Other Publicly-owned Forest Area.—25,000 acres by State institutions.
Annual Average Lumber Producion (1920).—779,800,000 board feet.
Average Annual Consumption.—700,000,000 board feet.
Last Annual Appropriation for Forestry.—$11,800.

Forest Fire Laws.—Provisions of law against setting fires, requiring spark arresters, etc. Patrol system of districts. Chief problem is to secure public coöperation. Cattlemen set fires to improve grazing lands. Fire prevention work largely educational. Lack of appropriation hampers building system.

Forest Taxation Laws.—No special forest taxation laws.

Nurseries.—No State forest nurseries.

Other Activities.—Literature distributed in schools, where law requires teaching of forestry. Patrolmen address meetings urging forest fire protection. Some lumber companies and hardwood industries interested in conservation and coöperating in fire protection. Trophy offered to patrolman doing best protection work by Appalachian Logging Congress. Women's clubs becoming interested and newspapers coöperating.

TEXAS

Agricultural and Mechanical College of Texas. Forestry work started in 1915.

E. O. Siecke, State Forester, College Station, Texas.

Area of State.—170,173,000 acres.
Original Forested Area.—48,000,000 acres.
Present Forest Area.—33,000,000 acres.
Idle or Unproductive Forest Land.—4,000,000 acres.
Timber Stand.—38,000,000,000 board feet.
State Forests.—None.
National Forests within State.—None.
Other Publicly-owned Forest Area.—310 acres of municipal forest.
Average Annual Lumber Production.—1,500,000,000 board feet.
Average Annual Consumption.—1,800,000,000 board feet.
Last Annual Appropriation for Forestry.—$39,600.

Forest Fire Laws.—Patrol system. Coöperation with Federal Government in protection. Patrol districts average about 300,000 acres. Volunteer citizen coöperation and contribution from timberland owners. All engines and boilers operating near forest or grass land required to have spark arresters of approved type. Penalty of $200 maximum for wilful and neglectful setting of fires.

Forest Taxation Laws.—No special forest taxation laws. Special effort being made by Forestry Department and Texas Forestry Association to bring enactment of such laws to encourage forestation.

Nurseries.—No State forest nurseries.

Other Activities.—Increased appropriation for forestry purposes, including funds to inaugurate a policy of establishing State Forests.

UTAH

No State Forestry Department

Land Area of State.—52,597,760 acres.
Original Forested Area.—6,400,000 acres.
Present Forest Area.—6,600,000 acres.
Idle or Unproductive Forest Land.—Insignificant.
Timber Stand.—15,000,000,000 board feet.
State Forests.—None.
National Forests within State.—7,453,400 acres.
Other Publicly-owned Forest Area.—1710 acres by two cities.
Average Annual Lumber Production (1920).—7,750,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$3000.

Forest Fire Laws.—No definite protective system in view of practically complete ownership of forest land by Federal Government.

Forest Taxation Laws.—None.

State Nurseries.—None.

Other Activities of State.—State Conservation Commission created in 1909 to investigate natural resources of state and report on policies and measures for their protection from waste. State Board of Land Commissioners has jurisdiction over all lands and may set aside timber areas necessary to the protection of streams and the preservation of sources of water for irrigation.

VERMONT

Vermont Forest Service. Created in 1909.
Robert M. Ross, Commissioner of Forestry, Montpelier, Vermont.

Land Area of State.—5,839,360 acres.
Original Forested Area.—5,760,000 acres.
Present Forest Area.—2,750,000 acres.
Idle or Unproductive Forest Land.—2,093,000 acres.

* Timber Stand.—10,800,000,000 board feet.
State Forests.—29,950 acres.
National Forests within State.—None.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production.—164,500,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—$23,000.

Forest Fire Laws.—System of district wardens, patrol work, telephone lines and lookout towers. Coöperation with timberland owners associations and U. S. Forest Service.

Forest Taxation Laws.—Yield tax law with exemption of plantation.

Nurseries.—Two nurseries at Sharon and Essex Junction. Total of about four million seedlings.

Other Activities.—Carrying on reforestation of waste lands, advising farmers on woodlot management, carrying on forestry publicity.

VIRGINIA

Office of State Forester (Under Geological Commission). Created 1914.
Chapin Jones, State Forester, Charlottesville, Virginia.
Alfred B. Hastings, Assistant State Forester.

Land Area of State.—25,767,680 acres.
Original Forested Area.—24,960,000 acres.
Present Forest Area.—13,800,000 acres.
Idle or Unproductive Forest Land.—1,500,000 acres, including waste, brush, abandoned fields and pasture not restocking.
State Forests.—588 acres.
National Forests within State.—332,106 acres.
Other Publicly-owned Forest Area.—1500 acres.
Average Annual Lumber Production (cut).—Estimated in 1919 at 1,382,900,000 board feet, including firewood.
Average Annual Consumption.—Estimated in 1919 at 3,661,000,000 board feet, including all uses.
Last Annual Appropriation for Forestry.—$18,000 for year ending February 29, 1924.

Forest Fire Laws.—The forest fire laws provide penitentiary sentence for malicious setting of fire to woods, grass, etc.; fines for negligence, for burning brush without precautions; for failing to keep premises of steam mill in woodland free from trash in vicinity of boiler or slab fire, for operating engines, mills or boilers near forest or brush without efficient spark arrester. Forest Wardens appointed under direction of State Forester for enforcement of these laws and fighting fires.

Forest Taxation Laws.—There are no special forest taxation laws. Forests are taxed as other real estate, although they are usually assessed separately from the land on which they stand.

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* U. S. Forest Service estimate, 1915.

Nurseries.—One small nursery is maintained on the grounds of the University of Virginia. About 30,000 trees distributed at low cost in 1923 for reforesting.

Other Activities.—Under the forestry laws of the State, the State Forester is charged with direction of forest fire protection; coöperation with landowners in forestry practice; investigation of and reporting on methods of conserving forest resources; conducting education on forestry; maintaining a State nursery and purchasing and supervising State Forests. In protection the State coöperates with landowners, the counties and the Federal Government. Aid to landowners has been in great demand. Investigations have been made into the resources of the various counties, and numerous educational leaflets have been published.

WASHINGTON

Department of Conservation and Development, Division of Forestry. Created in 1921.

F. E. Pape, State Supervisor of Forestry, Spokane, Washington.

T. S. Goodyear, Assistant Supervisor of Forestry.

Land Area of State.—42,775,000 acres.

Original Forested Area.—22,000,000 acres.

Present Forest Area.—14,319,000 acres.

Idle or Unproductive Forest Land.—5,552,000 acres (60 per cent. restocking).

Timber Stand.—282,645,481,000 board feet.

State Forests.—1,215,000 acres.

National Forests within State.—9,356,000 acres.

Other Publicly-owned Forest Area.—Unappropriated Government land, 1,117,000 acres; Indian Reservation, 50 per cent. timbered, 2,024,000 acres.

Average Annual Lumber Production.—6,500,000,000 board feet.

Average Annual Consumption.—Unavailable.

Last Annual Appropriation for Forestry.—$57,500.

Forest Fire Laws.—Comprehensive and progressive forest fire protection law administered by a State Board of Forest Commissioners. More than 500 commissioned fire wardens in State. Coöperation from private owners. Additional help in danger season. Average annual fire loss, $400,000. About $300,000 a year spent in fire protection. Slash burning favored on cut-over land.

Forest Taxation Laws.—No special forest taxation laws. Question being discussed. Constitution provides equal and uniform taxation of all property. Amendment would be necessary for forest tax law.

Nurseries.—No state nurseries for forest purposes.

Other Activities.—Law of 1923 authorizes issue of $200,000 in utility bonds creating a forest development fund. Object to establish a permanent forest policy and institute system of reforesting logged-off lands which state is accumulating at rate of 170,000 acres a year. Law against cutting Christmas trees without permission of owner. Forest Patrol assessments. State can levy a maximum of 5 cents per acre on forest land for fire protection.

WEST VIRGINIA

State Game and Fish Commission.

Forestry Official.—A. B. Brooks, Chief Game Protector, Buckhannon, West Virginia.

Land Area of State.—15,374,080 acres.
Original Forested Area.—15,360,000 acres.
Present Forest Area.—9,500,000 acres.
Idle or Unproductive Forest Land.—1,000,000 acres.
* Timber Stand.—47,600,000,000 board feet.
State Forests.—10,700 acres.
National Forests within State.—132,108 acres.
Other Publicly-owned forest Land.—None.
Average Annual Lumber Production (1920).—697,600,000 board feet (cut).
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—From Game and Fish Commission funds.

Forest Fire Laws.—Commission given power to protect forests against fire. May appoint local protectors to fight fires. Misdemeanor to leave fire unextinguished or to set fire negligently or maliciously. Railroads must remove inflammable material from rights of way at least twice a year and provide spark arresters.

Forest Taxation Laws.—No special forest taxation laws.

Nurseries.—No state forest nurseries.—Federal Government has nursery at Gladwin growing stock for National Forest area In State.

Other Activities.—Increased interest in forest fire protection. Associations of forest land owners who pay an annual assessment of one cent per acre into common fund. 1,250,000 acres included in this plan. This amount is duplicated by State from funds derived from 25 per cent. of hunters' license fees. New steel lookout stations on mountain tops. State receives $10,500 from Government under Weeks Law. Publicity on protective work through publications or lectures.

WISCONSIN

Conservation Commission. Forestry work started with fire laws in 1895.

C. L. Harrington, Superintendent of Forests and Parks, Madison, Wisconsin.

Land Area of State.—35,363,840 acres.
Original Forested Area.—30,080,000 acres.
Present Forest Area.—2,750,000 acres commercial forest land.

* Forest Service estimate, 1915.

Idle or Unproductive Forest Land.—11,000,000 acres cut-over, mostly restocking.
Timber Stand.—14,000,000,000 board feet; 43 per cent. hemlock.
State Forests.—173,000 acres.
National Forests within State.—None.
Other Publicly-owned Forest Area.—Federal—5000 acres; State Parks—15,000 acres; School Lands.—150,000 acres.
Average Annual Lumber Production (cut).—1,000,000,000 board feet.
Average Annual Consumption.—1,500,000,000 board feet.
Last Annual Appropriation for Forestry.—$35,000 for all purposes, including road improvements on State lands (1923).

Forest Fire Laws.—State and local fire warden system. State Warden empowered to mass such forces and other officials and individuals for fire fighting. Penalties for defacing warning notices; for leaving campfires unextinguished; for wilful and negligent setting of fires. Spark arresters required on engines, boilers, etc. Fire patrols in dry periods.

Forest Taxation Laws.—No special forest taxation laws except 30 year exemption of forest stand up to 40 acres on application. Law complicatel and little availed of.

Nurseries.—One State Nursery of seven acres at Trout Lake, Vilas County. Capable of producing million trees at capacity. Fair demand for stock from public and private sources.

Other Activities.—About 500,000 trees planted in 1923, 300,000 on other than State lands and the rest on State lands. Conservation Commission advises on methods of planting. Advocates the value of farm woodlots and advises on its creation and promotion.

WYOMING

No State Forestry Department

Land Area of State.—52,460,160 acres.
Original Forested Area.—8,000,000 acres.
Present Forest Area.—11,000,000 acres.
Idle or Unproductive Forest Land.—500,000 acres.
Timber Stand.—20,000,000,000 board feet.
State Forests.—None.
National Forests within State.—8,417,773 acres.
Other Publicly-owned Forest Area.—None.
Average Annual Lumber Production.—18,400,000 board feet.
Average Annual Consumption.—Unavailable.
Last Annual Appropriation for Forestry.—None.
No fire protective system. Railroads required to burn grass along rights of way. Penalties for failing to extinguish fires once started.
No special forest taxation laws.
No state nurseries. Bounty of not more than $10 per acre payable to citizen planting and caring for trees on one or more acres for five years.

CANADA AND HER FORESTS

In her forest resources Canada has assets comparable with those of the United States in extent and variety, and the Dominion is confronted with much the same problems of fire protection, reforestation, insects and disease control, research and utilization, as is this country. To meet these issues, Canada is following similar methods of administration, of arousing public opinion through forestry and conservation publicity, of technical education and of investigation.

Administration of the timberlands and the forestry activity of the Dominion Government is vested in the Department of the Interior. There are three branches of the department, one concerned with forestry alone, known as the Dominion Forest Service, another with timber and grazing and the third with the Dominion parks. Ontario, Quebec, British Columbia and New Brunswick have provincial forestry departments, while in Nova Scotia the forestry work and authority are vested in the Commissioner of Crown Lands.

There are thousands of unexplored and more or less inaccessible acres of forest in the Dominion, and, as a result, exact data is lacking on the extent of her forest resources. It is estimated, however, that there are 767,000,000 acres of forest land, 292,000,000 acres of which support growth of timber of merchantable size, commercially valuable as saw timber or for pulpwood, with 153,000,000 of these acres supporting a stand of saw timber size. On between 60 and 65 per cent. of the forest land the commercial timber has been destroyed by cutting or by fire.*

The following is an estimate of the accessible saw-timber material:*

	Softwood	Hardwood	Total
	Board Feet	Board Feet	Board Feet
Eastern Provinces ..	75,000,000,000	10,000,000,000	85,000,000,000
Prairie Provinces ...	10,000,000,000	3,000,000,000	13,000,000,000
British Columbia ...	160,000,000,000	600,000,000	160,600,000,000
Total.....	245,000,000,000	13,600,000,000	258,600,000,000

Slightly more than 93 per cent. of the total forest land area of Canada belongs to the Dominion and the remainder is in the hands

*Estimates of Roland D. Craig, F. E., Forestry Branch, Department of the Interior, Ottawa, Canada.

of corporations or individuals. One-quarter of the forest area is constituted as reserves and dedicated to timber production. This distribution of land ownership, however, is not the measure of ownership of timber resources. The State owns about 7½ billion cubic feet of saw-timber of merchantable age, while private interests, through leases, licenses or grants, hold about three times that amount. Approximately the same proportion of ownership exists over the resource of pulpwood, poles and piling material. The railways have considerable holdings, a condition which gives the Board of Railway Commissioners a certain forestry responsibility and authority.

In the maritime provinces of Canada there are found mixed forests, with birch, maple and beech predominating among the hardwoods and hemlock and red spruce being the most important softwoods. In the St. Lawrence Valley is found a southern hardwood growth of considerable variety including good stands of hickory, oak, elm, chestnut, walnut and other species. Only occasional conifers are found in this section, but on the plateau to the north there is a mixed coniferous and hardwood forest growth, hemlock being the prevailing softwood since most of the pine has been logged off.

Further to the north, spruce and fir predominate in a forest growth that has been but little explored and which represents a more or less inaccessible resource at present. The northern Rocky Mountain section supports an inferior growth of lodgepole pine, merging into forest of white pine, western larch, yellow pine and silver fir in the mountain section of southern British Columbia. On the coast and including Vancouver, are found fine growths of Douglas fir, red cedar and hemlock, while further north the coastal growth becomes western hemlock, yellow cedar and Sitka spruce.

Estimates place the annual cut of Canada's forests at about two and one-half billion cubic feet a year. No reliable information is available for the increment to the forest resources through annual growth, although it is set at below the yearly cut. Canada exports some three billion board feet a year, with the United States taking fully two-thirds of this export.

The Dominion Government now follows a policy of retaining title to all forest lands. Licenses are granted for the cutting of timber for them, stipulating that the timber must be manufactured before it is exported.

Forest fires, as in the United States, are the greatest enemies of the forests of Canada. A protective organization has been developed through ranger districts, using lookout stations, patrols and airplanes. A compulsory patrol by railway lines is required along their rights of way. Ninety per cent. of Canada's forest fires are caused by human agencies, one of the chief factors being the settler who burns to make way for his farm.

Reforestation is gaining rapidly in Canada. From the nursery at Indian Head, Saskatchewan, 70,000,000 seedlings have been planted as shelterbreaks since 1901. The first forest nursery in eastern Canada was established at the Ontario Agricultural College in 1904 and later transferred to southern Norfolk County. It now comprises 500 acres growing more than 15,000,000 young trees. Ontario has established the beginnings of 18 communal forests varying from a few to 1000 acres, and is bringing about the production of 20,000,000 seedlings preparatory to planting 10,000 acres a year for 60 years in old Ontario. Berthierville in Quebec a large nursery is dedicated to the work of reforesting as much of the 3,000,000 waste acres in that province as is possible.

Private activity in reforestation is marked by several outstanding instances. Recognizing the need of a continued supply of raw material, one large paper company in Quebec has a nursery of 50 acres with 22,000,000 seedlings and has planted 2500 acres. Another company has restored the growth on 1500 acres and there are other instances of such private activity.

Forestry education along technical lines is provided at the University of Toronto, the University of Laval and the University of New Brunswick. The Canadian Society of Forest Engineers is the active Association in the strictly technical field, while the Canadian Forestry Association, including professional foresters and laymen leads in the important work of public education to the forest problem. This problem rests broadly upon arousing the public to fire prevention, in creating conditions of better utilization, in meeting the annual loss through insect and disease and in furthering the work of both nature and man in the recreation of the forest resources.

THE FORESTS OF ALASKA

Covering the mainland and islands of the Alaskan coast along the semicircular strip stretching from the southernmost point of the territory to the eastern end of Kodiak Island are coniferous forests, mainly of Sitka spruce and western hemlock, shot here and there with red and yellow cedar and various other growths. Inland on the northern plateau, reaching up to the tundra of the arctic circle, is a vast forest area of lesser importance, here and there along the banks of rivers found in thick growths of birch and spruce thinning out into more sparsely covered stands.

In the coastal stands are concentrated about one-fifth of the timber stand of Alaska, while the inland territory embraces the remainder. In quality, however, and commercial possibilities, the coast timberlands have the greatest importance. Practically all of this latter area is included in the 20,571,549 acres of the Tongass and Chugach National Forests, administered by the United States Forest Service under a separate forest district with headquarters at Juneau.

Since the upper reaches of Alaska are for the most part unexplored from the point of view of forest resources, the forested area and the timber stands can be set only by estimate. Consequently guesses at the forest area run between seventy and one hundred and fifty million acres, while the timber stand, inclusive of all types, ranges in estimate from 100 to 140 billion board feet. The merchantable stand, being along the coast, is easier to approximate and is estimated at about 75,000,000,000 board feet.

The forested areas of Alaska in the two National Forests are given fire protection and administration under the Forest Service system. The stands of the interior, however, are annually swept by fires, burning for the most part without attempt to fight them. Fire and waste are at present about balancing the annual growth of the Alaskan forests.

About fifty million board feet of saw timber are cut out of the National Forests of Alaska a year, or practically all of the saw timber output. The forests of the interior are valuable for firewood and pulpwood and are almost entirely a part of the public domain administered by the General Land Office. Alaska exports some of its saw

timber and imports hardwoods and Douglas Fir, with the result that at present exports and imports about offset each other.

Despite the differences in quality and the comparative inaccessibility of its forest areas, Alaska has a resource of high value in its standing timber. It will be able to meet virtually all of its demands in the course of development. In addition it has a great asset in timber for pulpwood and paper manufacture, and it is estimated that the Alaskan forests could supply enough pulpwood to make one-third of all the paper products used annually in the United States.

FORESTS OF HAWAII, GUAM AND SAMOA

While the forest resources of the island possessions of the United States in the Pacific play a comparatively small commercial part, they are interesting in various ways.

On the island of Guam, the largest and most thickly populated of the Marianas, there are but 6400 acres of forest. A wood known as ifil, hard and heavy at the center, is the most important wood on the island. It makes a sturdy furniture wood and is beautiful when kept highly polished. There are various other exotic woods, among them chopag, dugdug, ufa and ajgao found on the island. Copra is the most important item of export, but no saw timber is sent out.

The six islands of the Samoan Archipelago belonging to the United States have 483,840 acres of forest. Their forests are remarkable in size and in variety. There are coconut palms, contributing their meat as the copra for export; breadfruit trees and many exotic species of various qualities, largely used at home.

Hawaii supports, on its several islands, an aggregate timber stand covering slightly more than one million acres. They are tropical forests, with considerable mesquite, and the commercial value of the woods is not great, koa, or Hawaiian mahogany being the most valuable. Ohia lehua is a valuable wood for protecting watersheds and is the dominant wood in the native forest. About 800,000 acres of the Hawaiian forest area is forest reserve. The forestry work is carried on by the Board of Commissioners of Agriculture and Forestry, with C. S. Judd as Superintendent of Forestry. The government nursery at Honolulu has been established more than 20 years and in that time 4,657,428 trees have been distributed from it.

FORESTRY IN FOREIGN COUNTRIES

The practice of forestry in the various countries of the world varies from nothing at all to intensive methods employed in such countries as France and Germany, where the necessity of conserving and rebuilding wood resources has been recognized as a part of national policy for more than a century. Some countries are still wastefully exploiting their resources of standing timber. Some, like Palestine and Syria, today show the results of this exploitation centuries ago, boasting little vestige of their original resources.

The World's forest area is estimated roughly to be about 7,500 million acres. Asia and South America contain about 2000 million acres each, while North America is estimated to possess 1,444,000,000 acres; Africa, 797,000,000; Europe, 774,000,000; Australia and Oceania, 283,000,000 acres. Annually some 56,000,000,000 cubic feet of wood are cut from the forest areas of the world.

Conditions of supply and demand, of course, vary widely for the various parts of the world. The relative possessions in coniferous trees and in hardwoods are of wide variation as well. Extent of public ownership of forest resources ranges from very high to very low percentages, with similar extremes in the scope of knowledge of forestry in the broad sense.

To attempt an estimate and analysis of the forest resources, practices and other data of the various countries is beyond the scope of this ALMANAC. Such information can be found in no better or more authoritative volumes than the two entitled *The Forest Resources of the World,* compiled and written by Raphael Zon and William N. Sparhawk, forest economists of the United States Forest Service. In this volume, therefore, only brief treatment will be given to the detailed situation, the aim being simply to indicate the general progress of the forestry movement abroad.

Afghanistan

The forests of Afghanistan cover barely two million acres, have no commercial importance and serve only to provide the inhabitants with firewoods and timber.

Arabia

Known as a treeless country, Arabia boasts perhaps slightly more than one million acres that may be classified as forest land. There is little commerce in forest products, what little there is being in the way of imports.

Argentina

Official figures for Argentina set the forest area of that country at 264,000,000 acres, with the State owning slightly less than nine per cent. of this territory. Timber manufacture, particularly in quebacho for tanning purposes, is an important industry. Argentina set about to take a survey of her forest resources 13 years ago but lack of funds has hampered this as well as other forestry activity. There are regulations protecting the public forests and July 9 has been designated as Arbor Day throughout the country.

Australia

Only about 90,000,000 acres of the surface of Australia are covered with forests, although in many sections of this area the stand is one of high quality and thick growth. More than 20,000,000 acres have been set aside as forest reserves. There is an excess of imports over exports in merchantable timber.

In each of the states which go to make up Australia there have been created forestry departments. In New South Wales a policy of government cutting and handling of timber and extensive fire protection is being followed out, and planting of about 1000 acres a year is carried on. In Queensland the government owns 85 per cent. of the forest area, and a forest service has charge of fire protection and leasing of the lands. In South Australia the entire forest area is in the hands of the State, which protects it and cuts it under its forest service. Tasmanian forests are administered by an active forest department which supervises cutting, provides protection and maintains nurseries. In Victoria a commission manages the forests, exercising broad powers to fix cut and prices. In Western Australia the government owns all the commercial timber and administers it through a Forests Department with wide powers.

There is active interest in the forestry movement in Australia. There are several forestry schools and associations. The country

participates in the British Empire Forestry Association and has various congresses of its own on the forestry question.

Austria

Austria's forests cover approximately 7,600,000 acres, of which nearly two-thirds are in private ownership, about one-eighth in the hands of the State and the remainder owned by communities and religious organizations. Dislocations incident to the war have transformed Austria's commercial situation with relation to the consumption and exportation of wood, but even with the partitions that have taken place indications are that Austria will continue to be a large exporter. Strict laws regarding the handling of private forests and a successful organization of the public forests have obtained in Austria in the past, and their future administration remains to be seen. Effective educational facilities have been provided in the past, but they are at present languishing somewhat for lack of financial support.

Belgium

About 1,300,000 acres go to make up the forest area of Belgium, where nearly two-thirds of the forests are in the hands of private owners and the remainder owned among public institutions, the State and the communes. The latter hold the largest percentage of publicly-owned forest. Some 75,000,000 cubic feet are cut from the Belgian forests every year, an amount representing almost exactly one-half of the annual consumption of wood. While the publicly-owned forests are run according to continental methods of conservation, no restrictions are placed upon private owners in the cutting and management of their holdings. Two state forest schools are maintained as well as a depot for forest research at Groenendael.

Belgian Africa

About 450,000,000 acres of Belgium's possessions in Africa are covered with forest growth of various species, some of it dense and inaccessible. So far as import and export goes, however, the forests have little present significance. There is no real forestry regulation except in so far as permits are required for the cutting of saw timber from the portions of the forest area reserved to the State.

Bolivia

Just the extent of the forest resources of Bolivia is in question for lack of exploration, but it is estimated to be considerably more than 100,000,000 acres. The State still has large holdings amounting to possibly 80 per cent. of the forest area. The extent of Bolivian forests has not demonstrated the need of a forest policy, although the government has stopped selling large tracts for exploitation and has provided for the creation of a nursery to carry on reforestation of highlands.

Borneo

Although unexplored in large measure, the forests of British Borneo are estimated to be about 40,000,000 acres, turning out forest products largely for export to the Chinese, Indian or English markets. Investigations of resources and the possibilities of exploitation are now under way.

Brazil

Brazil is rich in forest resources with close to a billion acres of forest area, divided between private owners and the several states. While the country is not a large exporter, it has an immense potential possibility in this direction. The lumbering industry has not been actively developed. There has been created a Federal Forest Service, which is now engaged in taking account of stock of the assets of the country and carrying on forestry education. Some of the states have acted in various ways for the protection and recreation of their forest resources.

British Africa

The colonies and protectorates grouped under British Africa have an aggregate forest area of about 350,000,000 acres, Nigeria and the Gold Coast being the chief exporters. Some of the colonies, as Bechuanaland, have little or no forest growth, while Nigeria is the richest. Various regulations are in vogue in these territories, largely vesting the authority over forest exploitation in the local officials of the government. In the Union of South Africa activity is going on to afforest the land both by government initiative and aid to private owners. The forest officers come from England although a school to prepare assistants is maintained at Cape Peninsula.

British Guiana

Fifty million of the land acres of British Guiana are covered with forest growth, 99 per cent. of it belonging to the crown, which follows a policy of holding lands with valuable growth. The forestry laws allow the leasing of lands for short terms and under restrictions. A forestry office has been created and filled by a trained technical forester, who, with a small staff, conducts investigations into the forest conditions of the country.

British Honduras

Estimates of forest area in British Honduras set the acreage at about three and three-quarter million acres, about 60 per cent. in private ownership. The country is an exporter of valuable wood, particularly mahogany, and has a small domestic consumption. Although no system has been applied to the exploitation of the forests in the past, there is an active movement on foot to establish a department in charge of this work.

British West Indies

Forests in the British West Indies, including Bermuda, total about 1,700,000 acres, varying from the considerable stand of 735,000 acres on the Island of Trinidad to the denuded condition of some of the smaller islands. Jamaica supports a growth of about 400,000 acres of merchantable timber. For the most part there is little organization of the forestry activities in the British West Indes except on Trinidad and Tobago where the large percentage of crown lands carries a power of control over operations.

Bulgaria

Seven and one-half million acres are estimated as the forest area of Bulgaria. This country is an importer of wood, consuming about 6,000,000 cubic feet a year above an annual production in the vicinity of 68,000,000 cubic feet. The ownership of forest land is complicated by political conditions, but the State and municipalities lay claim to a total of more than 80 per cent. Fires, grazing and insects exact a large annual toll from Bulgarian forest resources, a loss accentuated by the lack of organization for either fighting fires or regulating the conversion of the forest resources. The statute books of the country boast several satisfactory forest laws but no power now exists to

enforce them. In 1922 a new law was enacted creating a Forest Service but its effectiveness is not yet proved.

Ceylon

Ceylonian forests probably are in excess of 12,000,000 acres, with possibly three million permitting of exploitation. The State and religious institutions own practically all of this area, good and bad, and the cut from the forests is used at home. A forestry department manages the forests and returns a large revenue to the government every year.

Chile

While forests of various kinds cover a more considerable land surface of Chile, only about five million acres are covered with a merchantable stand of timber, with a considerable proportion owned by the State. Chile has been prodigal in the use of her forest resources and there is a large import of wood products. Various laws were passed several decades ago designed to check depredation but they were not enforced. It is only within the last ten years that forest reserves have been set aside to a total of about one and one-half million acres.

China

China has, according to estimates for all her provinces, a forest area of about 200,000,000 acres. It is, nevertheless, a country that has denuded its forest areas and must import the better and larger kinds of lumber. Just what ownership obtains in the forests of China is not determined by any statistics, and the cut from her forests is likewise indeterminate, although it is estimated to be close to two billion cubic feet. That China is awakening to the importance of forests is indicated by governmental action. A Forest Service in a department by itself has been established. There is a nursery at Kiangsu, and other nurseries are being developed to carry out the program of reforestation inaugurated by the Forest Service. This department is also busily trying to arouse the public on forestry questions and to further technical education for the work that has to be done.

Colombia

Fifty per cent. of the land area of Colombia, or about 150,000,000 acres, supports a forest growth of productive nature. The majority

of the forests belong to the State. Despite the large resources, the export of Colombia is small and confined to special woods, while the imports are likewise small owing to a minimum demand. Forestry laws designate certain lands supporting special types of growth as national forests and specify the terms of leases of lands made to private owners by the government.

Costa Rica

Although figures are incomplete, estimates place the forest area of Costa Rica at between eight and nine million acres, largely in public ownership. Domestic consumption is on the increase, but the export trade in timber is an important activity in this Central American country. There is a fairly awakened appreciation of the need of forest conservation, taking form in widespread school instruction, but so far as laws go it has not taken form in much more than executive decrees.

Cuba

Twelve or thirteen million acres comprise the forest area of Cuba, with approximately 10 per cent. in public ownership on the part of the State. There is an excess of import over export. No forest policy worthy of the name exists, and there is a considerable denudation of forest lands. A forestry division exists, largely as an agency for collection of revenue from forest operations.

Czechoslovakia

Cut off from Austria-Hungary, the new Czechoslovakian Republic was endowed at birth with a large forest resource of about twelve and one-half million acres, constituting nearly one-third of the land area of the country. Of this the State owns slightly more than one-ninth; the church and public or semi-public units, one quarter, the rest being in private hands. It is an exporting country, cutting annually about 560,000,000 cubic feet and exporting approximately one-fifth. Efficient management of forest areas is prescribed, land once forest land is always forest land, and reforestation within five years and protection against fire and disease is required of private owners.

Denmark

Including island possessions, Denmark's forest area is set at about eight and three-quarter million acres, with the State in possession of

24 per cent. About 47 per cent. is held by private owners and the rest is in the hands of political units or under semi-public ownership. Denmark is an importer of wood, and although the annual cut of her forests is not officially stated, it is estimated that about one-half of the annual consumption of 70,000,000 cubic feet is domestically supplied. There are fire protection laws and a law of 1805 vests the State Forester with the power to mark trees for cutting on land acquired by private owners and to prohibit cutting within ten years after acquisition. One course in forestry is supplied, a research station is maintained at Copenhagen and there is some active popular education in behalf of forestry.

Ecuador

Estimates place the forest area of Ecuador at slightly in excess of 55,000,000 acres, in large measure owned by the State, although the exact distribution of ownership is uncertain. The country is not a large importer or exporter. The government has not entered upon forestry activity in any way.

Esthonia

This newly created Baltic State includes within its area about two million acres of forest land with only about 5000 owned by the State and the remainder in the hands of private owners. Its newness accounts for the lack of statistics on its output and the extent of commercial activity in lumber, but indications are that it will be an importing country, depending upon Russia for the bulk of its supply. Its chief port of Riga will see, undoubtedly, a large trade in lumber out of Russia.

Finland

This country is one of the most heavily forested for its area, with an estimated acreage of 53,500,000 under forest growth. Some 15,000,000 acres of this, however, are so inaccessible as to be impracticable of exploitation at present. The State owns about 24,000,000 acres of the entire forest area, although some of the forest area classed as privately owned is really the property of the government and loaned to private operators. It is estimated that the timber stand amounts to about 13,000,000,000 cubic feet and the annual cut is set at one tenth of this figure. Finland is a large exporter, sending out about 300,000,000 cubic feet of wood a year, and using much wood in

manufacture. There is considerable awakened appreciation of the importance of the forestry movement in Finland, and the University of Helsingfors has established a Department of Forestry to train foresters. A research institute has been created, and laws have been enacted to check the cutting of young timber. Advisers are maintained through government aid to assist the farm with forestry problems, and the Forestry Society of Finland, organized in 1909, is an active organization.

France

In 1914 the forests of France totalled 24,420,000 acres. Of this 2,962,000 acres were owned by the State; 4,816,000 acres belonged to the communes or were included in public establishments and the remaining 16,642,000 acres were privately owned. It is estimated that 500,000 acres were stripped entirely of productive timber by the war, and that 375,000 more acres were the victims of abusive, premature or vicious exploitation. By the acquisition of Alsace-Lorraine, France came into about 1,090,000 wooded acres, about two-thirds of which is under State or communal control.

The forests of France are maintained on a policy of sustained yield, the annual growth equalling the annual cut. There are about 960,000,000 cubic feet of wood taken from the forests of France and Alsace-Lorraine annually. The annual consumption is somewhat over a billion cubic feet, making France an importer. The government is carrying forward a program of intensive reforestation of the areas devastated by the war and the forest stands depleted by the exigencies of supplying her own and the Allied armies.

Solicitude for her forest resources is fundamental in France, which has followed a definite policy since the days of Colbert and the ordinance of 1669. Educational facilities are provided by the State for the training of foresters, the upper school being at Nancy and the secondary and forest guard schools at Les Barres in Loiret, where one of the most complete arboretums and research stations is maintained. France, also, is looking in the near future to the exploitation and improvement of the forest resources of her colonial possessions.

French Africa

In her several colonies in Africa, France has about 150,000,000 acres of forest land, perhaps one-third of which has merchantable

value. At present the home government is giving active attention to these resources in her colonies and through the home department is investigating them and administering them.

Former German Colonies in Africa

Previous to the war Germany had African colonies with forest areas aggregating about 46,000,000 acres of forest. Cameroon, the richest in forests, is now under joint British and French mandate. German East Africa is under joint mandate to Great Britain and Belgium, while German Southwest Africa, with some million acres of forest, is a part of the Union of South Africa. Great Britain and France hold mandate over Togoland, which has no forest value.

French Guiana

Between eighteen and twenty million acres constitute the forest area of this French possession. The annual cut is small in proportion and there is virtually no import. No system of administration has been installed, although the French, as a part of their colonial policy have recently studied the high potential value of this possession.

Indo-China, France

In France there has been, particularly since the war, an increasing interest in the forest possibilities of colonial possessions. In French Indo-China there are some 60,000,000 forest acres, in some sections heavily forested and in others deforested by the natives. The colonial branch of the Department of Waters and Forests is now active in administration and reforestation, controlling practically all of the forest area in Cochin-China, Annam, Cambodia and Tongking. The forests are classified for the types of wood they contain and exploited accordingly under close jurisdiction.

French West Indies

About 80,000 acres divided evenly between Guadeloupe and Martinique are the forest areas of the French West Indies. Most construction material is brought in. In Martinique there is an activity of forest owners to prevent devastation and to encourage reforestation.

Germany

Thirty-five million acres constituted the approximate forest area of Germany before the war, but by the Treaty of Versailles, four million acres were taken away. About one-half of the area belongs to the State, the crown forests and the communes. Private owners own about 47 per cent. and there is four per cent. of the total area in the hands of institutions of various kinds.

Germany, like France, follows out a program of not eating into the forest capital, balancing the yearly increment with the yearly cut. With the losses from the war, Germany's annual cut was decreased to a figure of in the vicinity of one and one-half billion cubic feet. To satisfy her demands it is necessary to import about another half billion.

The German forest laws require a permit before the lands can be cleared; reforestation is carried on in all cut-over land; the State forester has the power to take over the management of a forest area if in his opinion the owner is mismanaging it. There are seven higher schools for the training of foresters. At present the situation in Germany is affected by the dislocation of currency and general conditions in Europe, but it is indicated that her forests will continue to serve the State as they have in the past.

Great Britain

Three million acres are all that remain of the original dense woods that once grew in the United Kingdom. Ninety-six per cent. of this area is owned by private individuals and the remainder are crown lands or in the hands of some governmental department. From this area the total annual cut is not greatly in excess of 40,000,000 cubic feet, while the annual increment is slightly under this figure. The consumption, of course, is several times the production, being estimated at about 600,000,000 cubic feet a year, the United States and Canada, Norway and Sweden, Finland and Russia largely supplying the deficit.

To the significance of this condition of dependence for forest supplies, there is an aroused sentiment in the United Kingdom. Forest planting was undertaken as far back as 1885. The war accentuated the dependence and in 1919 a Forestry Commission was appointed to carry out a program of reforesting 1,770,000 acres of

land, planting 200,000 acres in the first ten years, three-quarters by the State and one-quarter by public groups and private interests. Several cities have embarked on programs of forest ownership and reforestation, and there are several societies active in the interest of recreating the Kingdom's forest resources. Systematic instruction in forestry is provided at various educational institutions, including Oxford and Cambridge and Edinburgh University.

Greece

Although about one-half the total land area of Greece is essentially forest land, less than 18 per cent., or about 2,600,000 acres are forested. Through the Balkan Wars about two million additional acres of forest area were acquired, but none of the timber resource is of high commercial value. Perhaps 80 per cent. of the area is so-called "State Forest," meaning in Greece that the citizens obtain permits to go into the forests and cut what they want. The private forests are administered without supervision. The cut from her forests is extravagant, being approximately 120,000,000 cubic feet, slightly less than the consumption at present, but indicating an increasing degree of dependence upon importation of wood. Greece lacks a systematic forest policy or code, but a forest school is maintained at Athens to train foresters.

Guatemala

Some 20,000,000 acres of the surface of Guatemala are under forest growth, controlled in large measure by local authorities with the title vesting in the State. Export of mahogany and cedar is important. All forestry legislation is in the form of decrees imposing restrictions and requiring protective activities by the local officials in control of the forests.

Haiti

Haiti has a forested area of about four million acres with comparatively little data bearing upon the actual assets and the nature of their ownership. There is nothing resembling a forest policy.

Honduras

The State owns a large percentage of the twenty-three and one-half million acres of forest in Honduras. Consumption slightly exceeds the annual cut. The State reserves certain woods of value

allowing them to be cut only under contract, and a license is required for transportation of forest products, giving the government a check on operations.

Hungary

The war and the treaty of peace took away about six-sevenths of the forest area of Hungary, leaving what remains of the country with little more than three million acres. Only about 10 per cent. of this is estimated to be the property of the State. Before the war, Hungary was an exporter of wood, but with the reduced resources it is estimated that the country will be in large measure dependent for these supplies.

India

The total forest area of British India is 215,000,000 acres, while that of the Native States totals another 40,000,000 acres. Of the total for all India, the British Government owns 160,000,000 acres. Nearly 350,000,000 cubic feet of wood for all purposes is estimated, and while railway timber is imported, there is large exportation of saw timber and considerable export of manufactured products. The forests are administered by the Indian Forest Service, which draws on the Imperial Service, the Provincial Service and a subordinate service of rangers and guards for its personnel. The forests are classified for various purposes, the government dedicating about one-half of its land to forest production. Dehra Dun is the centre of educational activities in India, where training is provided for the service. *The Indian Forester* is published by the Forest Service.

Italy

The Treaty of Rapallo added to the 12,000,000 forest acres of Italy about 3,000,000 more acres. The forest assets of Italy have been decreasing rapidly, and a considerable amount of those that remain are situated in mountainous regions where they are not only in a measure inaccessible but are likewise important for the protection of water supply and the prevention of erosion. Figured in the forest assets, also, there are large areas of chestnut groves of economic importance but not considerable in the saw timber resources. The ownership of the Italian forest areas, both in the original and acquired territory, is about equally divided between private forests and those owned either by the State, communes, communities, semi-public

foundations or corporations. The State ownership, however, is hardly four per cent.

The annual cut of the entire forest area now held by Italy is estimated to be slightly in excess of 450,000,000 cubic feet. Imports amount to about 130,000,000 cubic feet, chiefly in the form of material for construction purposes. A policy of State acquisition and reforestation of lands is being carried on. Laws have been passed to check stripping of lands, and a mandatory reforestation act was passed in 1910. There is an Italian Forest Service, actively supported by various private organizations, and the National Forest Institute of Florence trains foresters for the higher grade work.

Italian Africa

Italy's possessions in Africa have no particular commercial value, Tripoli having the only stand that can be considered in this category. No system is in vogue to administer what forests there are.

Japan

The total forest area of Japan, including Chosen, Formosa and Saghalien, is ninety million acres, with 46,000,000 acres on the island of Japan itself. The ownership of the forests in Japan proper is about two-thirds by the State, crown, communes or church, and the other third private. Forests are classified according to the purposes they serve in protecting watershed, etc., in providing timber and in being assets of communities. They are exploited accordingly, turning out about two and one-quarter billion cubic feet a year, some 35,000,000 cubic feet being exported. The recent earthquake has made Japan temporarily, at least, an importer of American western timber. Japan has been actively building up her forest resources during the past decade, planting more than 300,000 acres to forest every year. Four schools are maintained to train technical foresters for the forest service and a forest experiment station was established in 1899 near Tokio.

Jugoslavia

Carved out of Austria and Hungary and augmented by the inclusion of several other states, Jugoslavia has a forest area of 17,000,000 acres. Political conditions still obscure the status of this area in the eyes of the government, but there was a large proportion of State

ownership in the pre-war status of these possessions. Although estimates must be based on the pre-war output of the various sections now forming the country, indications are that Jugo-Slavia will be an exporter of wood, having between 125,000,000 and 150,000,000 cubic feet of timber to send abroad after satisfying a home demand of more than 600,000,000 cubic feet. No complete forest policy has been worked out, but the several provinces have their various systems, most of which invite improvement.

Latvia

Some three million forest acres are credited to the Baltic State of Latvia, where public ownership amounts to about 28 per cent. of the forest area. The exact conditions in Latvia are still in the proving, but indications are that the country will be an exporter.

Liberia

Sixteen million acres comprise the forest area of Liberia, to which the United States is god father. The country has not taken a page from the book of its foster parent and the forests are not managed according to any system. Most of the saw timber used is imported.

Lithuania

Estimates of the forest area of the three former Russian provinces that go to make up Lithuania place a figure of about four and one-half million acres. The pre-war ownership was about 45 per cent. by the State. Indications are that the country, in common with others in the region, will be a manufacturer of raw material and exporter.

Luxemburg

Although small in area, the nearly 200,000 forest acres of Luxemburg constitute 30 per cent. of the total land area of the country and provide a virtual self-sufficiency so far as wood supply is concerned. Legislation is before the Chamber of Deputies for the improvement of the power of the existing Forest Service, particularly in the direction of checking wasteful lumbering and indiscriminate disposition of land.

Malay Peninsula

On the Malay Peninsula there are about 22,000,000 acres of forest land, the great bulk belonging to the State. There is an annual cut of about 250 million cubic feet but there is an excess of imports over exports. At present the Federated Malay States and the Straits Settlements have a forest conservator and subordinate officials supervising forestry problems. Some research is carried on and there is an attempt to better develop the methods of exploitations.

Mesopotamia

Once fairly rich in forests, Mesopotamia, under British mandate, boasts practically no tree growth and faces the task of reforesting from the ground up. There is some importation and what scrub growth there is supplies the demands for fuel wood.

Mexico

The forest acreage of Mexico is set at 50,000,000 acres, with perhaps another 25,000,000 acres of inferior growth, a large proportion of both being in the hands of the government. There is considerable American ownership as the result of mining and oil operations in Mexico. The country is an important exporter of high grade woods, and has a large domestic consumption in industrial operations.

Mexico has a Forest Service charged with the work of fire protection and the administration of the public forests. There are two nurseries, a ranger school and a technical forestry school. The country has adopted a definite forest policy of protection of streams and for reforestation.

The Netherlands

In three-quarters of a century the Netherlands have been growing timber, increasing their forest assets from about 415,000 acres to 610,000 acres, at present. In fact, they went even further, but the war resulted in draining some of the resource. This increase has been brought about with about 70 per cent. of the forests in the hands of private owners, who have practised forestry with profit. The cut from the forests is estimated at about 30,000,000 cubic feet a year and the total domestic consumption is approximately three and one-third times this amount. The forest work is administered by a small

forest service which encourages reforestation, advises in this work and administers the State forest areas. One school is maintained to train foresters for the country and its possessions.

Dutch East Indies

The Dutch East Indies are at present the object of solicitude on the part of the Netherlands Government with respect to their forest resources as a part of a program of colonial development of these resources. The total area of these possessions in forest acreage is estimated to amount to about 230,000,000 acres, rich in teak. In Java there has long been forestry activity under a forest service maintaining an experiment station.

Dutch Guiana

Dutch Guiana is heavily forested with a total area of about 26,500,000 forested acres, largely in government ownership. Valuable species of wood are exported and the import is at a minimum. The comparative lack of settlement and consequent lack of exploitation has not necessitated any system of forestry practice.

Dutch West Indies

There is virtually no tree growth of forest importance on the islands of the Dutch West Indies group, and imports from the United States meet the local demand.

New Zealand

Commercial timber in New Zealand is not a large resource as a result of extensive logging off of the land and considerable loss by fire. The government owns about 10,000,000 acres of State Forest, but hardly 15 per cent. of this is merchantable timber, and the productive forest area is not believed to total much more than two million acres. New Zealand, however, is now turning its attention to rebuilding its lost assets through its Forestry Department and both governmental and private planting.

Nicaragua

Forests cover some 22,000,000 acres of Nicaragua, according to estimates, and the government owns a large percentage. There is a

considerable export of mahogany of high quality. There is lacking a definite forest policy, although the government levies a tax on timber cut on public lands and exported. There is noted to be a sentiment for recreating the forest cut in mahogany.

Norway

The total forest area of Norway is 17,500,000 acres, of which about three million acres are not productive. Private ownership predominates, with about three million acres owned by the State, communes and charitable institutions. About 430,000,000 cubic feet are cut from the forests every year, approximately one-third being exported in manufactured products. An efficient forest fire protection system is maintained in Norway; a Forest Service administers the State areas; active support of the forestry movement is supplied by the Norwegian Forestry Association, a training school is maintained at Aas. The laws regulating cutting are not as strict as those of Norway's two neighbors, Finland and Sweden, the laws differing in locality. No statutes require reforestation but a law compels the political subdivisions to employ trained men to manage the forest areas owned by the communes. A yield tax system is in vogue with a small tax on forest growing land.

Palestine and Syria

Little remains of the forest resources of these countries, the forest acreage totalling perhaps 750,000 acres. The Forests of Lebanon are no more. When under Turkish rule the bulk of the forest area was State owned and this still obtains. There have been some small attempts to restore the former forest assets and beauty of these countries but a long future of dependence is before them both.

Panama

Merchantable timber covers 12,400,000 acres of the surface of the Panamanian Republic, most of it being publicly owned. Exports are small, being largely in valuable woods and the imports are largely in construction woods. The forest policy is not well defined but restrictions are imposed on concessionaires and it is required that watersheds and windbreaks be left in many cases.

Paraguay

Paraguayan forests cover 27,500,000 acres, most of which have been transferred to private owners by the government. There is a large export of special woods and little import. The only activity of the government remotely resembling a forest policy has been to cease giving away her lands. Otherwise there is no regulation.

Persia

Only the Caspian Province of Persia boasts a forest growth and this amounts to barely 30,000,000 acres, all being owned by the government. There is, however, an export greater than import, due largely to the lack of demand occasioned by lack of transportation.

Peru

Some 200,000,000 acres are forested in Peru, largely owned by the State, but there is a large import and a comparatively small domestic cut, due largely to the inaccessibility of the forest area. While there is no forest organization, the government has prohibited cutting of trees in certain places where they serve an æsthetic or protective purpose.

Philippine Islands

Scattered among the more than 2000 Philippine Islands there is an aggregate of approximately 38,000,000 acres of forest land owned almost entirely by the State. About 11,000,000 cubic feet are cut from these resources annually for timber, and exports and imports of forest products for all purposes about balance. Indications are that the exportation and exploitation will increase.

Poland

Since the present Poland is made up of new territories formerly the property of Russia, Austria or Germany, the exact status of forest resources is largely a matter of estimate, the forest area being variously set at between twenty and twenty-five million acres. About 30 per cent. is in the hands of the State and the rest owned and operated by private enterprise, the total being productive of an annual cut estimated at approximately 700,000,000 cubic feet. Poland is an exporter of timber, but institution of a conservative system of

forest administration and legislation, which is now lacking, may result in cutting down the volume of export.

Porto Rico

Through exploitation and clearing for agricultural purposes, the forest area of Porto Rico has been reduced to about 100,000 acres. There are 15,443 acres under control of the United States Forest Service and 15,000 acres of mangrove classified as Insular Forests. There is an Insular Forest Service in charge of about 40,000 acres of forest area and carrying on publicity and research in connection with the forestry movement.

Portugal

Recent reforestation on the part of both the government and private individuals in Portugal has increased the forest area of that country until it is estimated that nearly five million acres can be classed as forested. State forests amount to about 100,000 acres. Annually between 100,000,000 and 150,000,000 cubic feet are cut, and Portugal is slightly on the exporting side of the ledger in timber. Under Portuguese laws the revenue from government-owned forests makes up a forestry fund, and locally owned lands suited only for forest purposes are placed under the forest service. In sections where afforestation work is proposed even private forests are under the control of the forest service. This system has resulted in an increase of many thousand acres in the forest area of the country. Portugal is divided into forest zones and farming zones, and schools carry on instruction and research in each district. Trees are furnished free by the government to communities and private individuals in many cases, and Portugal is a country aroused by economic necessity and government activity to the importance of a forest policy.

Portuguese Africa

There are about 30,000,000 acres of forest land in the African possessions of Portugal, with Angola and Portuguese East Africa dividing the bulk of this amount, and about a million acres in Portuguese Guinea. No systems of administration are in vogue.

Rumania

Twenty-one million acres of forest now are the property of Rumania, which before the war had about six million acres. As a result of the changes in territory the balance of State ownership of forest lands has been upset somewhat but today the ownership is about evenly divided between private interests and the State, communes and quasi-public owners. The new acquisitions enhance Rumania's position as a wood exporter, about 90,000,000 cubic feet being available for export. All forest areas except those owned by private interests are administered by a forest council and along lines of technical forestry methods, but the real authority of this system is small at present and the number of denuded acres is growing rapidly.

Russia

European and Asiatic Russia, Turkestan and the Caucasus together have a total of approximately one and one-half billion acres, with one billion in Asiatic Russia. This is necessarily an estimate and includes many thousands of acres within the forest areas that do not support a stand of commercial timber.

Forest land in Russia in Europe is now nationalized under the existing government, but even before the war the State owned nearly 70 per cent. of the forest area. Seven billion cubic feet is set as the annual cut from the European Russian forests, which is a little more than one half the natural reproduction of the forest resources. Forty per cent. of the cut is available for export, an amount more than enough to supply the European deficit. The pre-war statutes classified commercial and protective forests under private ownership and regulated the cutting of the latter, and prohibited wasteful cutting and denuding. A number of forestry schools were maintained and this number has been increased under the present régime.

In the Caucasus before the war the State owned about half the forest area, but the lumber industry is not highly developed and the supply of timber far exceeds the demand.

The forest resources of Asiatic Russia are tremendous and mostly unexplored. Ninety-five per cent. is government owned or in joint ownership with tribes of Siberia. The cut of timber is far below the rate of growth, and the amount of timber available for export can

be figured in billions of cubic feet. Turkestan is equally wealthy in proportion.

*Russia's Forestry Situation.**

Region	Forest Area	Ratio to Land Area	Annual Cut	Annual Growth	Excess Import	Domestic Consumption	
						Total	Per Capita
	M. acres.	Per cent.	M. cu. ft.	M. cu. ft.	M. cu. ft.	Cu. ft.	Cu. ft.
Russia....	440,000	38.7	7,000,000	12,711,000	400,000	6,600,000	66.0
Caucasus..	18,500	15.9	250,000	500,000	1,325	248,675	18.8
Siberia....	1,083,500	30.5	1,000,000	10,786,000	2,000	998,000	69.3
Turkestan.	40,000	14.7	100,000	100,000	.....	100,000	15.0
Total..	1,582,000	31.2	8,350,000	24,097,000	403,325	7,946,675	59.2

Salvador

With somewhat less than a million acres of forest land, Salvador has practically given over the control of her forest assets to private ownership. The country is largely self-sustaining. The government has a very definite forest policy of sustaining her forest resources by requiring provisions for natural reforestation and by checking indiscriminate cutting. May third is designated as Arbor Day when every citizen is urged to plant a tree and take care of it.

Santo Domingo

There are about 9,500,000 acres of forest land in this Republic, gradually being reduced as the land is being converted to agriculture. The bulk of the land is government owned but not in a strict sense. Provisions of law allow the setting aside of forest reserves and creating a forest service, but government and public sentiment is not actively aroused in support of a forest policy.

Siam

Siam is estimated to possess about 35,000,000 acres of forest land, all fundamentally owned by the government. The greatest asset of the Siamese forests is teak, and for the protection of this, as well as for other forestry work, a forestry department has been created. Teak is the second most important export of Siam.

*Based on table, p. 485, vol. 1, Forest Resources of the World, Sparhawk & Zon.

South Sea Islands

Exclusive of Guam, Hawaii and the Samoan Islands, there are about 14,000,000 acres of forest land scattered through the South Sea Islands. There are various valuable woods in this section but the commerce is not highly important either in import or export. Little or no system of forestry is in vogue.

Spain

Figures vary for the forest area of Spain, some setting it as high as sixteen million acres, but general opinion is that the area is not in excess of twelve million and that the productive forest area is slightly less than that. According to Spanish statistics approximately 12,000,000 acres are in State or communal ownership, with some five million acres privately owned. The cut of the forests of Spain appears as much in doubt as the forests themselves, 150,000,000 cubic feet constituting a not too conservative figure. Spain is both an importer and exporter, the latter figure being slightly higher. A law designed to promote conservation is on the statute books but there is considerable wasteful cutting being practised and more power is sought for the Director General of Agriculture, Mines and Forests. The Royal School of Forestry graduates a class annually and the chief public movement in behalf of forestry is on the part of the Royal Spanish Society of Friends of the Forest, publishers of the *Spanish Forestry* magazine.

Spanish Africa

Insignificant forest resources are found in the Spanish African possessions, Spanish Guinea being the only important one with some four million acres of forest chiefly important as a source of mahogany.

Sweden

Sweden has a total forest land area of about 58,000,000 acres, with the area of her productive forest land between three and four million acres less than that. The State owns wholly or jointly about 13,000,000 acres, enjoying the income from about ten million acres and controlling the cut entirely or in large measure on all of the public acreage. About one and one-half billion cubic feet are cut annually, about one-half of which is exported. Sweden has an effec-

tive fire protection organization of coöperation between State and private owners. Under a forest commission of three the laws of the country affecting her timber resources are administered, controlling cutting by private owners, levying a yield tax and maintaining protection. Forestry is taught in the lower schools, imbuing the young people with the importance of their country's timber resources and higher training in scientific forestry is provided. The forestry movement is actively supported by several associations, among them the Swedish Forestry Association.

Switzerland

In Switzerland there are 2,320,000 acres of forest land, 100,000 acres of which are owned by the republican government and 1,577,000 acres by the cantons. The remainder is in the hands of private interests. The war years forced upward the annual cut of Switzerland, carrying it beyond the annual increment in the effort to meet outside demands. For a time an exporter, the country is becoming an importer once more. Its mountainous geography results in placing the bulk of the Swiss forests in the classification of protection stands, thereby regulating cutting to selective methods. Trained foresters are prepared for service at the Polytechnic School and a forest research and experimental station has been established for nearly 40 years.

Turkey

The forest area of New Turkey, including Smyrna, amounts to about seventeen million acres, 88 per cent. owned by the State. Exploitation in past years has taught Turkey the necessity of conservation and it is anticipated that when the political situation has cleared a policy of selective exploitation will be followed under laws providing for strict supervision.

Uruguay

Not geographically a forest country, the forest acreage of Uruguay scarcely totals one million acres, practically all of it in private hands and largely in connection with ranches. There is a large import. For many years the government has endeavored to encourage planting

through offers of prizes and considerable has been accomplished in coöperation with the government, which now provides nursery stock.

Venezuela

One hundred million acres approximate the forest area of Venezuela, 70 per cent. in State ownership. Exports and imports are both small. A Forest Service is nine years old, protecting the forest area and administering concessions on it. Experimental stations have been established and regulations of cutting limits are prescribed.

FOREST TAXATION LAWS

Forest taxation is a phase of the forestry problem that still remains to be solved in its wider and general aspects. It is an important issue in the whole question, but one concerning which comparatively little practical information is available, and on which only inadequate tests have been made. Enactment of special forest tax legislation has been tried in a handful of states, but the results are as yet more or less inconclusive. It is now being agitated in a number of other states.

The fundamental aim of such special legislation is, of course, to encourage private reforestation and timber growing. The central theory, then, must be so to postpone or adjust the burden of taxation that private initiative may be induced to undertake the production of a slow-growing crop. Thus all laws that have been enacted so far, and that have proved to have any promise of value, are those setting a nominal tax for the land growing timber and levying a cutting or yield tax on the timber when taken out.

New Jersey, Iowa, Kentucky, Idaho, Maine, Colorado, West Virginia, Tennessee, Illinois, Washington, North Carolina, Alabama, Texas, Oregon, Montana, Maryland, California and Wisconsin, among the organized forestry states, have not enacted special forest taxation laws. An effort to pass such a law failed in Maine, and in Colorado bills have been filed consistently without progress. In California, and in Oregon, acts passed by the Legislatures were vetoed by the Governors on the grounds of unconstitutionality. In Texas and Wisconsin there is considerable sentiment in support of such a move.

New York has three forest taxation laws on the statute books but there is so much red tape connected with them that they have proved virtually useless. Rhode Island has a more or less ineffective law, the revision of which is now being urged. Pennsylvania, Massachusetts, New Hampshire, Connecticut, Louisiana and Indiana are the six states with laws of interest in connection with this problem although they have not in any instance been widely availed of.

There are barriers to the enactment of such legislation in several states where the constitutions impose limitations on such forms of special statutes. Another problem is that the forest land areas fre-

quently occur in sections of the country where loss of revenue by the local political unit, whether town or county, cannot well be afforded. Some method of equalizing receipts from taxation is essential, therefore.

The provisions of the McNary-Clarke Bill contemplate research in this question with a view to devising some more or less uniform legislation to encourage timber growing through revision in taxation. The Forest Service is studying this phase of the question, and both tax experts and forestry experts are giving attention to the issue.

Connecticut

Woodland and land suitable for forest planting may be classified as forest land for purposes of taxation upon application to the State Forester, provided that the land is not worth more than $25 an acre. Upon investigation of the land for which request for classification has been made, the State Forester has authority to admit it. Land which bears timber of more than 10 years' growth of taxable value is taxed annually at the local property rate, but not in excess of 10 mills in any case, upon the true and actual value of the land and timber separately, as established by the assessors at the time of classification.

At the end of 50 years from original classification, a revaluation is made, the property being subject to a tax of not more than 10 mills at the local rate for another 50 years. Whenever cutting is made on land so classified, it is subject to the following graduate yield tax: From one to 10 years after the land is classified the tax shall be 2 per cent. of the yield; from 11 to 20 years after, 3 per cent.; from 21 to 30 years after, 4 per cent.; from 31 to 40 years after, 5 per cent.; from 41 to 50 years after, 6 per cent., and over 50 years, 7 per cent.

Land fully stocked with forest trees not more than 10 years old or incompletely stocked but planted to enough trees to assure a spacing of six by six over the entire area, or planted with not less than 1200 forest trees to the acre of the species ash, chestnut, maple, oak, tulip, white pine, red pine, Scotch pine, European larch, Norway spruce or others provided by the State Forester, may be classified and taxed according to the provision of the law as to annual levy and yield tax. Reclassification is possible if the land is cut and reforested either naturally or artificially.

The law requires the owner of such classified land to provide

reasonable protection, and authorizes the State Forester to cancel classification if the owner fails to fulfil conditions of protection, freedom from pasturage and use solely for timber growing. Forfeit is exacted in cases where the classification is revoked. The law permits the cutting of timber for domestic use without payment of the yield tax, and requires payment of the yield tax before removal of the timber. Appeals to the courts from the decisions of the State Forester are allowed under the law.

Indiana

This law is entitled: "An act to encourage timber production and to protect watersheds by classifying certain lands as forest lands; and prescribing a method of appraising lands thus classified for purposes of taxation." The act makes a detailed definition of land which may be classified as forest plantation or native forest. All such lands are assessed at one dollar an acre, and may be so classified and assessed if the owner properly surveys and plots them, paying the cost of survey. Any parcel of land to be classified must be at least three acres in size.

Under the law no grazing must be permitted on the land; its sale transfers the classification to the purchaser; it must be marked by signs provided by the State; it must be inspected by the State Forester; it is subject to withdrawal at any time by the owner upon application and appraisement and on it an unearned increment tax paid equal to the sum of the last appraisement less the first appraisement. The State Forester may cancel the classification upon failure to comply with conditions of management.

New Hampshire

The forest taxation law of New Hampshire is limited to woodlots not exceeding 50 acres. It provides that any owner of forest land not valued at more than $25 an acre but stocked or to be planted to young growth promising a yield of 25,000 board feet an acre may apply for classification. Upon approval of the application, the tract is carried on the town tax list with the tax assessed upon the land alone regardless of the growing timber. The obligations of classification pass with title to the land.

The law permits the owner to cut in any one year timber for his

own use or that of a tenant up to $50 stumpage value without tax. A cut in excess of this is subject to a tax at the rate prevailing for timber of the same class. When in the judgment of the assessors the stand on such classified land has reached 25,000 board feet an acre, the assessors give notice that it will be taxed at the local property rate at the end of two years. The owner has the option of reducing the stand below this board footage and retaining it in classification. Withdrawal is permitted by payment of the land tax and on the estimated value of the standing timber. Appeal to the State Forester from a finding of assessors as to classification is permitted.

Louisiana

This law permits the owner of land valued at not less than $3 and not more than $8 an acre to enter into contract with the Department of Conservation for the purposes of taxation. Such a contract obligates the owner to practice forestry upon the land and, if necessary, plant suitable and useful trees, protect the land from fire and maintain them in a growing and thrifty condition so far as possible.

Any landowner desiring to enter into such a contract must make application to the department, furnishing a description and plat of the land to the department and the Police Jury in the parish in which the land is located. The land is inspected and the Police Jury of the parish sets a cash value on the lands, at which they are carried on the assessment roll for 10 years for purposes of taxation. At the end of this period the lands are re-assessed for another five years and may be reassessed for an additional five years. At the end of the period the land is returned to the tax rolls and the levy is as on other similar lands. Failure to comply with the provisions of the law is penalized by exaction of a tax of the difference between what has been levied and what would have been levied, plus interest at 6 per cent.

Massachusetts

This law provides that any owner of forest land valued on the tax list for the preceding year at not more than $25 an acre, containing not more than 20 cords per acre, but promising a yield of 20,000 board feet for softwoods and 8000 board feet for hardwoods per acre, may apply for classification by the assessors. The assessors inspect the land, value it as land alone and certify their findings. The

standing growth on the land is not taxed, but it shall pay a tax of 6 per cent. on the stumpage value of all timber cut from it, except that the owner may cut up to $25 worth annually for his own use without taxation.

When the classified land has attained an average growth per acre of 25,000 board feet for softwoods and 10,000 for hardwoods, the owner is notified that at the end of two years it will be subject to the six per cent. tax. The owner may reduce the stand, but at the end of five years from the date of cutting the land must meet the original requirements for classification. Land may be withdrawn from classification on payment of the 6 per cent products tax. Appeal on questions of eligibility for classification to the State Forester is allowed, and fine is imposed for failure to comply with the terms of the act.

Pennsylvania

Pennsylvania has three laws relating to the taxation of forest land. One statute creates auxiliary forest reserves, and owners of forest land may apply to the State Forestry Reservation Commission, giving details concerning their lands, for inclusion in this category. The commission may examine this land and certify it to the county commissioners as proper for inclusion. These officials may place the land in the reserve if the owner agrees in writing to care for the trees growing thereon, obligating himself by filing bond to cover recovery of the lost tax by the State in event of failure to comply. When the trees on such land have become of merchantable value the commission, at the request of the owner or on its own motion, designates the trees suitable to cut. If the owner follows these instructions and plants trees in the place of those removed, the land remains in the reserve.

The taxation of land so classified is provided in another statute. Land in the reserve is rated in value at not more than $1 an acre so long as it remains in classification. Underlying assets, such as minerals or oil, are taxed separately. Whenever timber of forest reserve of this type is to be harvested, the owner must give bond to 20 per cent. of the estimated value of the timber to be harvested, and must pay as a yield tax 10 per cent. of the value of the trees harvested within 90 days. In case the land is removed from the auxiliary reserve before maturity of the timber, the amount of taxes

that would have been paid are levied. Similar to the State Forest Reserves, the lands classified in the auxiliary reserve are subject to an annual charge of 2 cents an acre for schools and 2 cents for roads, the charge made payable by the State.

PRIVATE TECHNICAL FORESTERS

With the gradual stimulation of public interest in forestry and the encouragement to private enterprise along the lines of scientific forestry, there is growing up a field of endeavor for trained foresters in a consulting and advisory capacity. The following list of private foresters has been compiled by the United States Forest Service, but neither the Forest Service nor the American Tree Association assumes to indicate by its publication an intimate knowledge of the qualifications of the individuals or firms listed.

The following figures are a key to the type of work the private foresters report themselves equipped to handle:

(1) Timber estimating, mapping and surveying.
(2) Timber appraisals.
(3) Tree planting.
(4) Logging engineering and plans for logging development.
(5) Market studies, best disposal of products.
(6) Technical Forest Management and sylvicultural methods.

H. V. Gyllenband, Route 2, Box 12, Lowell, Arkansas *(1, 2, 3, 5, 6).*
F. E. Olmsted, Stanford University, California *(1, 2, 6).*
Prof. Gordon Parker, Colorado School of Forestry, Colorado Springs, Colo. *(1, 2, 6).*
P. L. Buttrick, Sage Hall, New Haven, Conn. *(1, 2, 3, 6).*
Theodore S. Woolsey, Jr., 242 Prospect St., New Haven, Conn. *(1, 2, 3, 5, 6).*
The James L. Goodwin Associates, Connecticut Mutual Building, 36 Pearl St., Hartford, Conn. *(1, 2, 3, 6).*
James W. Sewall, Davidson Building, 921 15th St., Washington, D. C. *(1, 2, 3, 4, 6).*
W. D. Sterrett, 35th and Rodman Streets, Washington, D. C. *(1, 2, 5, 6).*
Benedict and Rue, Southern Building, Washington, D. C. *(1, 2, 3, 4, 5, 6).*
James D. Lacey and Co., 1750 McCormick Building, Chicago, Ill. *(1, 2, 4).*
George T. Carlisle, Jr., 27 Columbia St., Bangor, Maine *(1, 2, 3, 4).*
Philip T. Coolidge, 31 Central St., Bangor, Maine *(1, 2, 3, 4, 5, 6).*
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ARBOR DAYS IN EACH STATE

The "Father of Arbor Day" was J. Sterling Morton, who, at a meeting of the State Board of Agriculture in Lincoln, Nebraska, on January 4, 1872, introduced a resolution setting aside April 10 for tree planting. Kansas and Tennessee took up the practice in 1875 and in 1882 North Dakota and Ohio followed. In 1885 the Nebraska Legislature passed an act changing the date to April 22, Mr. Morton's birthday, and making it a legal holiday in the State. Arbor Day is observed throughout the country as follows:

Alabama .....February 22.
Arizona .....In 5 northern counties, Friday following first of April; elsewhere Friday following first of February.
Arkansas .....First Saturday in March.
California .....March 7, birthday of Luther Burbank.
Colorado .....Third Friday in April.
Connecticut .....Early May by proclamation of Governor.
Delaware .....April by proclamation of Governor.
District of Columbia ....Third Friday in April by proclamation of Commissioners.
Florida .....First Friday in February.

Georgia ..... First Friday in December.
Hawaii ..... First Friday in November.
Idaho ..... Various dates in April, selected by county superintendents.
Illinois ..... Proclamation of Governor, in April.
Indiana..... Third Friday in April.
Iowa ..... Proclamation of the Governor.
Kansas ..... Option of Governor.
Kentucky ..... In fall by proclamation of Governor.
Louisiana ..... Second Friday in January; resolution State Board of Education.
Maine ..... Option of Governor, in the spring.
Maryland..... Second Friday in April, proclamation of Governor.
Massachusetts..... Last Saturday in April, proclamation of Governor.
Michigan ..... Proclamation of Governor. Usually last Friday in April.
Minnesota ..... Proclamation of Governor, latter part of April.
Missouri ..... First Friday after First Tuesday in April.
Montana..... Second Tuesday in May.
Nebraska ..... April 22.
Nevada ..... Proclamation of Governor.
New Hampshire ..... Proclamation of Governor, early May.
New Jersey ..... Second Friday in April.
New Mexico ..... Second Friday in March; proclamation of Governor.
New York ..... Friday following first of May.
North Carolina ..... Friday after November 1.
North Dakota ..... Option of Governor.
Ohio ..... Proclamation of Governor. Middle of April.
Oklahoma ..... Friday following second Monday in March.
Oregon ..... Second Friday in April.
Pennsylvania ..... Proclamation of Governor.
Porto Rico ..... Last Friday in November.
Rhode Island ..... Second Friday in May.
South Carolina ..... Third Friday in November.
South Dakota ..... No law, generally observed in April throughout State.
Tennessee ..... Appointed by county superintendents in November.
Texas ..... February 22.
Utah ..... April 15 by statute.
Vermont ..... Option of Governor, usually first Friday in May.
Virginia ..... Proclamation of the Governor in the spring.
West Virginia ..... Usually second Friday in April.
Wisconsin ..... Proclamation of Governor. Usually first Friday in May.
Washington ..... Proclamation of Governor. Usually first Friday in May.
Wyoming ..... Proclamation of Governor. Usually first Friday in May.

THE PRESS AND THE FORESTS

New York Tribune.—There is sound sense in the suggestion of Mr. Charles Lathrop Pack, president of the American Tree Association, that " agreement instead of argument " is needed in the forestry policy of the nation... There must be laws, there must be education, there must be public agitation and exhortation, and all efforts must be coördinated in one consistent and persistent forest policy, unless we are to incur the distress of the prodigal through the squandering of one of our most precious natural possessions.

Springfield Republican.—The planting and development of forests is peculiarly a public function. It requires planning for posterity and continuous expenditure for which immediate returns are not possible. Private outlay in anticipation of benefits which the person or persons making the outlay will not receive, belongs in the domain of philanthropy rather than of ordinary business enterprise. Commendable and to be encouraged, without doubt, but not a safe reliance from the point of view of a continuing society. It is on this familiar, but neglected basis, that Senator McNary of Oregon has introduced a bill the purposes of which are enumerated as " to provide for the protection of forest lands, for the reforestation of national forests, and for other purposes, in order to promote the continuous production of timber on lands chiefly suitable therefor."... It deserves careful and early attention.

Philadelphia North American.—In all that has been said about tree conservation these last few years, public attention has been directed to the forest. Nothing is more vitally connected with man's economic welfare, hence forest conservation should be preached and published until its practice becomes a cardinal point in the creed of good Americanism. At the same time we must not forget another phase of the tree's value to man—its gifts of beauty, health and comfort to the town.

Oakland Tribune.—Strengthened by a declaration in President Coolidge's message, and by active participation of a score or more of the important organizations of the country, the movement toward reforestation is going forward, at last, as it should have gone forward many years ago.

Chicago Journal.—The American Tree Association urges private enterprise in forestry, as well as extension of public forests. On account of the long-time investment, hazards of fire, insect and storm, it is recognized that public timber lands are necessary, although entire ownership is neither essential or desirable.

The Christian Science Monitor.—In the United States there are some 80,000,000 acres of idle land which is fit for nothing but growing trees. Moreover, a great part of this land is situated east of the Mississippi River; that is, close to the manufacturing centres of the country. There is little wonder, therefore, that the educational campaign of the American Tree Association is finding considerable support in every section... The campaign is a praiseworthy one and deserves all possible support.

Omaha World-Herald.—To those organizations that advocate conservation of forests, reforestation and the beautifying of our communities by planting trees, we would give every encouragement. With great, silent, majestic, noble trees about us, our life is touched by their beneficence.

Portland Oregonian.—Though at first glimpse the plan of the American Tree Association, which proposes to begin preparations now to celebrate the centenary of Arbor Day fifty years hence will seem visionary, it has the merit of appeal to a practical idealism of which we can hardly have too much.

Albany News.—It is waste that menaces the timber supply, not industry. Organizations have been formed to guard the forests, the government guards them, trees are being planted but thousands of them are needlessly destroyed. It is time to stop waste of timber. America is wasteful in many ways. It can be thrifty but after a period of thrift it turns to extravagance. Extravagance and waste are twin sisters for which the future must pay.

Cincinnati Enquirer.—How blind men are! And how selfish! We are using up timber in this country five times faster than it grows, say the statisticians. In other words, we are inviting the fate of the Sahara and all the arid, treeless, waterless wastes of the earth; we are planning to leave such deadly heritage to the children of the future! The American Tree Association, therefore, is doing a good thing in

calling upon the people to celebrate the centennial of Arbor Day in 1972 by planting the trees now.

New York Telegram.—Middle-aged folks recall the fact that in their early youth Minnesota was a timber producing state. There was a wealth of romance in the great industry of the old Northwest. Today, according to Charles Lathrop Pack, president of the American Tree Association, Minnesota is importing thirty million dollars' worth of timber annually. Our neighbor, New Jersey, is spending five millions per annum in freight charges alone upon the lumber she imports.

Los Angeles Times.—The idea of tree lovers combining for the beautifying of our landscapes and the advance of forestry is one of so wide and generous appeal that it should rouse a national sentiment on this important subject. The American Tree Association is educational and practical. It will forward from Washington to any of its members the advice of experts.

Scranton Republican.—There is fine sentiment back of the action of the American Tree Association in sending to France seeds for new trees of choice variety to be used to reforest the battlefields where Americans fought with such gallantry and effectiveness. This benefaction has been styled a beautiful one and the expression is justified by the facts. Long years from now, Americans whose soldiers helped save democracy from the grip of autocracy in its worst form, when visiting historic battlefields in France, will find themselves confronted by the familiar trees of their homeland.

Pittsbugh Post.—The seeds will go to nurseries until they are ready for transplanting as seedlings. Then they will be planted on the battlefields to heal the scars and to stand as a memorial of American participation in the war. These living things will help to remind the French of the American boys who died for France as well as for the United States, and whose bodies in many cases rest in the soil of France. And for their sake, as well as out of love for the trees themselves, the latter will receive careful attention.

Dayton Herald.—The American Tree Asociation has sent and is sending to the French millions of seeds for millions of new trees which will reforest the wastes over which Americans battled. A few

years hence great stretches of the devastated regions will be verdant with cypress and honey locust, with Sitka spruce, Colorado fir and Monterey pine...It will be a beautiful benefaction to which no Frenchman's eyes can turn in the future without a thought to the givers...It will be a fine thing for this country when there is a general emulation of the example of France in the replanting of a forest on every stretch of country which can sustain it and which is useless otherwise.

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